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ADDRESSES AND ORIGINAL ARTICLES

THE SURGERY OF THE DIFFUSE SPLENOMEGALIES.*

BY A. JAMES WALTON, M.S. LOND., F.R.C.S. ENG.,
SURGEON TO THE LONDON HOSPITAL.

I.

THE diffuse splenomegalies constitute a subject not only of considerable difficulty but one in which at present our knowledge is very uncertain. Whereas the pathology and treatment of the local enlargements of the spleen are fairly well defined, there is much to be learned, and therefore considerable disagreement, on these points in regard to the diffuse enlargements. So little, indeed, is known of the function of this organ and of the actual influence, whether benign or malignant, exerted by it in the various diseases in which it is affected, that only in recent years can any definite knowledge be said to have been gained as to the value of surgical interference. It is gradually being appreciated that there are certain symptom-complexes which are often spoken of as diseases, but curious combinations of the individual symptoms are occasionally seen which would make us believe that what is often regarded as a specific symptom of a definite disease is in fact only an alteration in splenic function which might possibly occur with several quite distinct changes. I have thus found that in my own work, both pathological and clinical, the greatest help is to be obtained by considering not primary pathological changes but alterations in the functions of the spleen, and although thereby one may possibly group together conditions which later may be shown to be due to entirely different pathological lesions, one obtains a greater insight into the difficult question of the value of surgical treatment.

Lesions Due to the Spleen's Function as a Reservoir.

Of late years, owing to the work of Barcroft and Binet, attention has chiefly been directed to the capacity of the spleen for acting as a blood reservoir. Its contractile power enables it to store up large quantities of blood which can be released in times of necessity—e.g., after a severe hæmorrhage. This function is not, however, entirely free from danger, for corpuscles which have become infected may be stored up in the spleen and so be removed from curative methods, whether natural or applied. This organ may thus act as a focus of infection over a very prolonged period, as is chiefly seen in the protozoal and tuberculous infections. Splenomegaly is common in all cases of malaria, kala-azar, and syphilis, and is then only part of a general infection. In certain cases, however, the disease becomes chronic and fails to yield to ordinary forms of treatment. The spleen may then remain enlarged, and may contain the parasites in relatively large numbers, so that just as a typhoid infection may persist for years owing to a localised focus within the gall-bladder, so may the spleen act as a nidus for a recurring infection. In the same way, if the evidence be clear that this is the only or chief focus, a cure may be brought about by splenectomy. Sir Humphry Rolleston has shown that in congenital syphilis the spleen is nearly always enlarged if the child is born with evidence of syphilis, and that a splenomegaly in a child with anæmia should always suggest syphilis. In such cases the patient may not improve with the ordinary methods of treatment, but may be cured after splenectomy. Giffin [9] reports ten such cases with three deaths and seven recoveries, the latter being well after ten years. Gibson [7] states that in certain cases of malaria and kala-azar in which the symptoms are chiefly the presence of a splenomegaly, a splenectomy may be a very successful measure, but in the latter disease, although the Leishman-Donovan bodies are stored in the spleen in vast numbers, splenectomy would probably be a hazardous procedure. It is interesting to note that in all such cases, as in most splenomegalies, an anæmia of the secondary type may be the dominant symptom. That a protozoal infection may lie dormant for many years within an enlarged spleen, just as a typhoid infection remains dormant in the gall-bladder, is shown by one of my cases.

A doctor, aged 46, who had lived in Demarara until the age of 13, had at that time attacks of malaria, but the infection had apparently entirely died out and he had remained free ever since leaving that country. Nine years ago he had a suppurative thrombosis of the left median basilic vein, and four years ago had a bad septic finger, but he had otherwise remained well and lived an active, busy life. For a few months he had been getting easily tired, and one week before, while lying in bed, had felt his abdomen, as it appeared to be larger than normal, and found that his spleen was much enlarged. Blood examinations showed nothing beyond a secondary anæmia, and he was reported as a case of splenic anæmia. Owing to the fact that he had had malaria as a child, special search was made for the presence of malaria parasites, but none was found. The liver was slightly enlarged and the spleen markedly so, reaching below the umbilicus.

Splenectomy was performed and he made a good recovery. The spleen was very large, weighing 4½ lb., and showed one large infarct in the lower pole. The Malpighian bodies were distinct and very visible, and the pulp a little granular, but there was no distinct fibrosis. Fifteen days after operation several parasites of the benign tertian type were discovered in the blood, and on the twentieth and twenty-third days after operation he had two typical attacks of malaria. With N.A.B. injections and quinine the attacks ceased, and the parasites disappeared from the blood. There therefore appeared to be little doubt that in this patient the malarial parasites had remained localised in the spleen for 33 years, and that during the splenectomy some were liberated in the blood, giving a return of the malarial attacks. He is now well and back at work.

With tuberculosis the changes are much less localised in the spleen. There is always a primary infection in some other area of the body, and the foci in the spleen have developed as a part of the general dissemination. The lesions elsewhere may retrogress but rarely heal entirely, while those in the spleen may increase until they dominate the clinical picture. Thursfield [24] has shown that there is a curious age-distribution of such changes; for they are more common in children over four months and under six years. Even if the spleen be large and the chief cause of the symptoms, removal is not very satisfactory in that the lesions elsewhere in the body are likely to recur at a later period, as in the two cases reported by Rock Carling and Braxton Hicks.[19] In a case in the London Hospital of this type there was old caseous tuberculous salpingitis with large caseating masses in the spleen, evidently of long standing (see Figure). The patient had, however, only been ill for a few months, and at post-mortem miliary tubercles were found throughout the lungs and bronchial glands. In all these cases in which the infection has—as it were—become stored in the spleen reservoir, there

* An address delivered before the Windsor Medical Society. Part II. will appear next week.

has been a general infection, and an operation therefore should only be undertaken if a thorough course of medical treatment has failed.

Errors in the Splenic Action upon Normal Erythrocytes.

The part taken by the spleen in the formation of the red corpuscles is curious and contradictory. It is generally accepted that in fœtal life red corpuscles are manufactured in the spleen, and there is no doubt that splenectomy may be followed by an anæmia of the secondary type which may persist for some months, although it is in many cases hidden by the anæmia due to the condition for which the spleen is removed. This is, of course, especially so in cases of splenectomy performed for rupture, where the intraperitoneal hæmorrhage is often extreme and is the common cause of death in fatal cases. In four of my own five cases of rupture, anæmia was a very marked symptom, but in the fifth, although the loss of blood was considerable, this symptom was not marked. In one of the four, in whom the peritoneum was full of blood, the erythrocytes had returned to over five million in ten days. In certain cases of chronic inflammation of the spleen this power of forming red corpuscles is apparently stimulated, and thus a polycythæmia results. Thursfield [24] has pointed out the curious fact that when tuberculosis of the spleen occurs in children between the ages of 6 and 12, there is usually a polycythæmia, and Gibson [7] showed that in the 25 cases he was able to collect, which had been reported as syphilitic, there was one with polycythæmia.

The cases of difficulty are those in which a polycythæmia appears as an apparently primary condition (Vaquez's disease). Even some of these have been regarded as due to a primary inflammatory change which has stimulated the erythrocyte-forming function of the spleen, and it is in this belief that splenectomy has been suggested and practised. Giffen [9] reports in his series one such case which remained well for five years and required no further treatment for the polycythæmia. This condition is, however, usually regarded as a general blood disease in which the spleen has failed to destroy the excessive number of corpuscles, and the enlargement of the viscus, which is so often found, is looked upon as an hypertrophy due to a curative attempt, rather than a cause. There is thus no indication for splenectomy, but rather a requirement for more splenic tissue.

More commonly the spleen appears to be a direct or indirect factor in the destruction of the red corpuscles, and there is a large group of conditions in which this effect is most marked, splenomegaly and an anæmia of the secondary type being the dominant symptoms. There is so much uncertainty as to the primary pathological changes in this group that it includes splenomegalies found with cirrhosis of the liver, with thrombosis of the portal and splenic veins, with occlusion of the hepatic veins (Chiari's disease), true Banti's disease, and von Jaksch's anæmia. The last condition, however, although it has frequently been described as a form of splenic anæmia occurring in children, should—as Sir Humphry Rolleston [20] points out—be considered as an entirely separate clinical entity. It has a familial incidence and is confined to the first three years of life. Not only are there present the definite splenic enlargement, the secondary anæmia, and the relative lymphocytic increase such as are found in Banti's disease, but an examination of the blood shows the presence of nucleated blood-cells and a constant myelæmia. There is also a tendency—according to Thursfield,[24] between 65 and 70 per cent.—to spontaneous recovery. It is often found associated with rickets. Since there is so marked a tendency to spontaneous recovery and the condition does not persist, there is no indication for splenectomy.

The nature of the other groups is very uncertain. So little is known of the pathology of the spleen that a classification of its diseases has had in the past to rest very largely upon the clinical picture. This is especially so in this group. In the earlier stages there is a secondary anæmia with splenomegaly, a condition which may persist for ten or more years. In the second stage the liver slowly enlarges, and in the third stage it gradually becomes cirrhotic and shrinks, and ascites supervenes. The first stage is generally spoken of as splenic anæmia, and the latter two stages as Banti's disease; in fact, Osler stated that Banti's disease was only a chronic splenic anæmia, together with cirrhosis of the liver, which represents a terminal stage of the disease. With the anæmia there is generally a leucopenia and a relative lymphocytosis. Of my own series of 42 splenectomies, 13 were grouped as splenic anæmias and four as splenomegalies secondary to cirrhosis of the liver (see Table). Of these, nine were recorded as showing

Author's Series of 42 Splenectomies.

—	Total.	M.	F.	Lived.	Died.
Rupture	5	4	1	2	3
Mobile	1	—	1	1	—
Malaria	1	1	—	1	—
Splenic anæmia	13 } 17	5	8	11	2
Cirrhosis of liver	4 }	1	3	2	2
Pernicious anæmia	3	—	3	2	1
Acholuric jaundice	4	1	3	4	—
Purpura	4+2	2+1	2+1	1+1	3+1
Lymphatic leukæmia	1	1	—	1	—
Myeloid leukæmia	1	—	1	1	—
Hodgkin	1	1	—	—	1
Lymphosarcomatosis	3	—	3	2	1
Hypercholesterinæmia	1	—	1	1	—
	42	16	26	29	13

M. = males. F. = females.

these blood changes. The enlargement of the spleen is considerable, and many of the patients seek advice owing to a sense of dragging weight and the pressure of a very evident swelling within the abdomen which is often the seat of severe pain. More important still is the presence of severe hæmorrhages, especially from the stomach. These may be repeated at short or long intervals, and may be sufficiently severe to endanger the patient's life. They may occur quite early, when the spleen is relatively small, so that the condition is mistaken for a chronic gastric ulcer, and in this erroneous belief a gastro-enterostomy may be performed. This had occurred in one of my own cases, and in two others a laparotomy had been performed. Sheen reports that a similar error had been made in a patient who came under his care. More rarely, hæmorrhages may occur from other mucous membranes; in one of my cases there was severe menorrhagia.

PATHOLOGICAL CHANGES.

Although the clinical picture is thus relatively clear-cut, there is considerable difficulty in determining the underlying pathological changes. Primary cirrhosis of the liver will cause back-pressure upon the splenic vein, and later upon the spleen. The latter organ enlarges very considerably; the capsule may become thickened and often shows fibrous adhesions. On section there may be evidence of old infarcts. The Malpighian bodies and trabeculæ are

often marked, and the pulp is generally somewhat soft and pink in colour, thus differing from the firm, dark-red pulp found with simple passive congestion. Scattered throughout the cut surface may be found a large number of small irregular yellow nodules varying in size up to several millimetres in diameter, each of which is surrounded by a narrow red-brown ring. These areas, which are generally known as Gandy-Gamna nodules, are regarded by McNee[14] as areas of necrosis occurring around the ellipsoids and he states that "When the valvular function of the ellipsoid preventing any flow back of venous blood into the arteries is remembered, it seems reasonable to suppose that in conditions of high venous pressure or of actual obstruction of the portal venous system a break or rupture is most likely to occur close to the obstructing valve."

Massive caseous tuberculosis of spleen.

With thrombosis of the portal or splenic veins the condition is very similar. In a specimen in the London Hospital museum there was a fibrous obliteration of the splenic vein, 2·5 cm. from the hilum of the spleen; this viscus was much enlarged, the capsule thickened with many fibrous adhesions, the cut surface firm, of a pink-grey colour, and showing several Gandy-Gamna bodies. McNee, however, states that in his series these fibrotic nodules were never found in spleens in which evidence of thrombophlebitis in the splenic vein was manifest. The liver was free from cirrhosis, and there was in this case no secondary anæmia.

The changes with syphilitic cirrhosis of the liver are almost identical unless there be superadded gummatous changes. The interesting condition known as Chiari's disease, in which there is an organised thrombosis of the ostia of the hepatic veins, is so rare that it is difficult to speak dogmatically of the changes in the spleen. In one example in the London Hospital museum the spleen was only slightly enlarged, the capsule, although a little thickened, was smooth and free from adhesions, the Malpighian bodies and trabeculæ appeared normal, and the pulp was firm and slightly blue as a result of venous engorgement.

The condition of true Banti's disease is difficult to describe, for there is a considerable difference of opinion as to what constitutes Banti's disease. McNee states that spleens with the characteristic histological changes described by Banti are extremely rare in this country, while others who accept the clinical syndrome as evidence of true Banti's disease regard the condition as common. Of the three cases in the London Hospital museum which fulfil the clinical requirements, all the spleens are considerably enlarged. The capsules are thickened and show many fibrous adhesions, the cut surface is firm with well-marked trabeculæ. The Malpighian bodies and in two the Gandy-Gamna bodies are evident. The pathological difficulty lies in determining the relationship of these different conditions to one another. Not only does a case which commences as a typical Banti's disease terminate with advanced cirrhosis of the liver, but if a portion of the apparently normal liver be excised during splenectomy it will nearly always—if indeed not always—show some evidence of central and portal fibrosis. It has therefore been suggested that the change in the spleen is secondary to the cirrhosis and is only of the nature of a prolonged back-pressure. On the other hand, many believe that the enlargement of the spleen is primary, and that toxic products formed therein lead to a secondary cirrhosis of the liver. The fact that splenectomy in the early stages of these cases showing the clinical syndrome of Banti's disease leads to a complete cure, and prevents the progress to cirrhosis of the liver, supports this contention.

Kidd[13] went even further and, noting the clinical resemblance of Banti's disease to cirrhosis of the liver, suggested that all cases of cirrhosis in which the spleen was enlarged should be given the benefit of splenectomy. Mayo operated upon six such cases and obtained great benefit in five, and therefore advocated operation. That a primary thrombosis of the splenic vein can and does lead to a great enlargement of the spleen with a secondary anæmia is undoubted, and both these cases and those of primary cirrhosis of the liver may be associated with attacks of hæmatemesis due to varicosity of the gastric and lower œsophageal veins. Turnbull is of the opinion that the majority of cases of Banti's disease seen in this country are due to a primary thrombosis, and finds that in the majority of such cases subjected to post-mortem examination this thrombosis is present. Gibson,[8] on the other hand, firmly believes that the disease is one of primary inflammation of the spleen, and that the toxic products in the spleen may not only cause a secondary cirrhosis of the liver, but also a spreading thrombosis of the splenic and portal veins. He has carried out laborious investigations upon a large number of spleens, and claims to have succeeded in isolating from them—and especially from the Gandy-Gamna bodies—a streptothrix which can be cultivated in artificial media, a result which has been supported by some Continental observers,

and especially by Prof. Nantor, but which has not been confirmed by other workers in this country. The fact already mentioned, that so many cases of Banti's disease have been apparently cured for a long period by splenectomy performed in the early stages, would certainly support the view that the primary site of the change is situated in the spleen. The work of Foa [5] and Troell,[26] showing that ligation of the splenic vessels leads to atrophy and not to hypertrophy of the spleen, also does not support the view that the change is due to a primary thrombosis. My own experience in 13 cases which were clinical examples of Banti's disease failed to show any evidence of thrombosis of the splenic vessels in seven.

Even in these more or less simple changes in the spleen, Rosenthal [21] and Howel Evans [11] have shown that the number of platelets in the blood may be altered. It is therefore possible that a diminution in their numbers may account for some of the hæmorrhages that are found in this disease: they were decreased to 45,000 in one of my cases. It is also certain that if the count be high the mortality is increased owing to post-operative thrombosis; a change which possibly in part accounts for the belief that the condition of the spleen is due to a primary thrombosis. The balance of evidence at present, therefore, seems to support the view that in these conditions the primary change is within the spleen.

Whether or not true Banti's disease does occur in this country, sufficient cases which conform to the clinical picture have now been subjected to operation for accurate estimates to be made of the value of this form of treatment. In my own series of 42 splenectomies there have been 17 which have been provisionally grouped in this series. Of these, four presented evidence of a primary liver change, leaving 13 which have been regarded as splenic anæmia. All investigators have been unanimous in finding that in this group the operative mortality is low, provided the operation is performed in the early stages, but if ascites is already present the risk becomes considerably greater. Sir Humphry Rolleston [20] found that in the 69 collected cases of Chaney the mortality was 13 per cent. when there was no hepatic cirrhosis, but it rose to 23·3 per cent. when this liver change was present. In Giffen's [9] series of 123 cases there were only 15 operative deaths, and in the 62 cases reported by Pemberton [17] only four deaths. The end-results of the cases operated upon in the early stages are also satisfactory. In Giffen's series 63 had been operated upon more than five years ago, and of these nine had lived longer than 11 years and one for 18 years. Of my own 13 cases grouped as splenic anæmia two who were gravely ill from severe hæmatemesis died as a result of the operation; two who had cirrhosis of the liver died within two years from further progress of the disease; one who had jaundice before operation occasionally shows the same symptoms. The others have remained alive and well, one for ten, one for eight, one for five, one for three years, and the remainder for shorter periods after operation. Of the four grouped as primary cirrhosis of the liver two died from operation and one a year later; one is alive and well less than a year after operation. Giffen and others have shown that, when cirrhosis of the liver is established, a considerable number die at a later stage from gastric hæmorrhage, probably from rupture of the varicose œsophageal veins. The recovery from weakness and anæmia is also much slower. On the other hand, if the cirrhosis of the liver be not too advanced, it may apparently improve. Parsons [16] has noted this fact, and Sweetser [23] has reported an interesting case in which not only was the patient alive and well 15 months after the operation, but the liver had, as far as could be shown clinically, apparently enlarged to normal size. When it is remembered that with any form of medical treatment these cases all seem to progress to a fatal cirrhosis of the liver, there can be no doubt that splenectomy should always be advocated in the early stages, provided the platelet count is not high, and even when there is a definite cirrhosis this operation may hold a hope of improvement if not of a complete cure.

THE ALBUMINURIA OF PREGNANCY.

A MECHANICAL HYPOTHESIS.*

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It is well known that a proportion of apparently healthy men (and presumably women) pass albumin in their urine in clinical amounts, and that diet, cold baths, and exercise may provoke albuminuria, while severe exercise may be associated with the passage of blood, granular and hyaline casts.

Jehle,[1] in 1908, suggested that orthostatic albuminuria was caused by lordosis, and it soon became evident that albuminuria could be provoked in many children and some adults by keeping them, while sitting or standing, in the position of lordosis. Fischl,[2] repeating the experiments of Jehle and Nothmann, was able to cause albuminuria in rabbits and dogs by tying them in a position of lordosis. Nobody has, however, explained precisely how lordosis causes albuminuria or whether the albumin comes from one or both kidneys.

Vorpahl,[3] in 1910, found that a girl, aged 12, with a left convex lumbar scoliosis and a compensatory right convex dorsal scoliosis, passed albumin but not casts from her right kidney only. Mayer,[4] in 1909, reported a case of orthostatic albuminuria in which the albumin came only from the left kidney. In 1920, Sonne [4] affirmed that in orthostatic albuminuria the albumin came from the left kidney only. He catheterised the ureters of six patients, and found the urine from the right kidney was normal in each case, whereas in four cases there was left-sided anuria, and in the other two patients the urine from the left ureter was albuminous.

It was with the object of investigating this problem, and attempting to determine whether the albuminuria of pregnancy could be explained on a mechanical basis, that the following experiments were performed.

Laboratory Experiments.

Seeing that my aim was to consider the subject from the clinical standpoint, I have only used two tests for the detection of albumin, the one being the boiling test performed after the addition of acetic acid, and the other the addition of trichloracetic acid (20 per cent. solution), the latter being used when the amount of urine was small. Albumin + corresponds roughly to between 0·05 per cent. and 1 per cent. of albumin, a "cloud" lies between albumin + and a "trace," which is readily seen, whereas a faint trace could only be detected against a dark background.

The first point I attempted to decide was whether

* The expenses of this investigation were met out of a grant given by the Medical Research Council, to whom I express my thanks.

dogs when placed in the position of lordosis passed albumin only from the left or from both kidneys.

Dec. 17th, 1930.—A dog weighing 13 kg. was anæsthetised with a mixture of chloroform and ether. Chloralose 1·3 g. was then introduced into the right jugular vein. The ureters were found and divided close to the bladder, and glass cannulæ were inserted into the ends, which were brought out through the abdominal incision. The abdominal wound, except for the lower two inches, was then closed. An empty Winchester bottle, having a diameter of 12·5 c.cm., was placed under the lumbar spines, and the dog tied firmly to the table. The urine withdrawn from the bladder contained no albumin. The secretion of urine was very slow. At the end of one hour, the urine from the left ureter contained a trace of albumin, and half an hour later the urine from both ureters contained albumin, which increased in amount as the experiment continued, although the quantity of urine secreted was small. Glucose in saline (200 c.cm.) was injected intravenously two hours after the commencement of the experiment, and within five minutes a distinct diuresis occurred. The urine passed a quarter of an hour later contained sugar but no albumin. Twenty minutes later the urine from both ureters contained albumin+ but no sugar.

The abdomen was then widely opened, and the feature which attracted the attention was the enormous dilatation of the inferior vena cava. Closer inspection showed this dilatation to be due to the curvature of the spine, at the angle of which the anterior wall almost came into apposition with the posterior, so constricting the lumen of the vein. Both renal veins were markedly distended, and the kidneys, of a blue-black colour, with glistening capsules, were distended to double their normal size. The kidneys were removed, and returned to almost their normal size soon after the veins were cut. When divided, each kidney showed a normal and relatively pale cortex, a deep purple zone at the bases of the pyramids, and a faint purple medulla. The capsules stripped easily.

This experiment was repeated on five further dogs, and was in each case conducted in the same manner, except that a wooden box, 10 cm. high by 7 cm. in width, was substituted for the Winchester bottle, and the ureters were brought out through stab wounds in the flanks, so that the abdomen could be completely closed. In every case albumin appeared in the urine, usually within 40 minutes, sometimes coming first from the right and sometimes from the left kidney. The amount of urine secreted varied considerably, but a diuresis could not, as a rule, be caused by the introduction of glucose intravenously. After the box was removed the albumin decreased in amount, but in no case did it disappear before the end of the experiment. It was usually possible to express about 4 c.cm. of urine out of each kidney before it was separated, but this manœuvre was liable to cause hæmorrhages on the surface underneath the capsule. The macroscopic appearances of all the kidneys were very similar, except that in some minute hæmorrhages were evident on the surface of the organ which had not been caused by handling.

THE PRESSURE IN THE INFERIOR VENA CAVA.

I next attempted to measure the pressure in the inferior vena cava.

Dec. 30th, 1930.—A dog weighing 9 kg. was anæsthetised in the manner described. The inferior vena cava was found and separated, and the small veins running into it ligatured. At this point Heparin was injected intravenously to prevent the blood from clotting. The vein was then tied in two places, below the entry of the renal veins, and divided. A glass T-piece, coated on the inside with paraffin, was inserted into the two ends of the vein and tied in position. The ligatures having been removed, the other end of the T-piece was connected with a manometer filled with saline. The pressure recorded was 6 cm. of saline. After the guts were replaced and the abdomen partially closed the pressure rose to 10 cm. The rapid introduction of 200 c.cm. of saline into the jugular vein caused the pressure to rise to 18 c.cm. The dog was then placed in the position of lordosis and the pressure rose to 35 cm., to drop almost immediately to 28 cm., at which level it remained constant. It is necessary to add that the shock and hæmorrhage associated with the operation caused the arterial blood pressure to sink to 60 mm. Hg.

This experiment was performed on three dogs, and on every occasion the position of lordosis was associated with a pressure of 28 cm. It is of interest to note that the pressure rose to 26 cm. when a recently killed dog was placed in this position.

These readings, while consistent, were too high owing to the fact that the bore of the T-piece was too small. I therefore measured the pressure in the lower end of the inferior vena cava by inserting a cannula into the right external iliac vein after the manner described by Bayliss and Starling.

The cannula and the manometer were filled with a 5 per cent. solution of sodium citrate, which has a specific gravity of 1042 or, roughly, 1/13th that of mercury, and it will be understood that subsequent readings of the venous pressure will be expressed in mm. of this fluid. The first dog weighed 7 kg. The arterial pressure (measured in the left common carotid artery) was 144 mm. Hg, and the venous pressure 23 to 28 mm. The dog was then placed in the position of lordosis, when the venous pressure rose to 140 mm. This position was maintained for one and three-quarter hours, at the end of which time the pressure had dropped to 123 mm. The arterial pressure remained constant during this time, although the pulse pressure decreased. Two other dogs, each weighing over 13 kg., were used. It was found possible to obtain readings of 220 mm. when the box was placed under the spine, but in both cases the pressure dropped to between 150 and 160 mm. after the position had been maintained for some little time. Dog 3 was turned over on to its left side and the spine arched while being kept in the same plane. In this position a pressure of 270 mm. was recorded, so that it is evident that the height of the box placed under the back does not account for the increase of pressure in the inferior vena cava. It was found that the intraperitoneal pressure was increased by 60 mm. of saline in the lordotic position, so that this rise of pressure, although significant, could not account for the increase in the venous pressure.

When the pressure in the inferior vena cava of dog 2 had remained constant for some time at 60 mm., 750 c.cm. of warm water were introduced into the stomach, which caused the venous pressure to rise to 92 mm. The pressure fell again to 60 mm. so soon as the fluid was withdrawn. On another occasion the introduction of a litre of water into the stomach raised the pressure in the inferior vena cava from 55 to 145 mm. When attempting to repeat this procedure on dog 3, it was found that the introduction of the stomach-tube was followed by a slow respiration-rate of 4 to 5 a minute. Immediately after inspiration the venous pressure dropped to 50 mm. and then rose rapidly to 110 mm. From this level the pressure rose gradually to 165 mm. until inspiration occurred about 15 seconds later. The expiratory phase seemed to be continuous, and was prolonged until inspiration occurred. This cycle was observed for over half an hour, during which time the arterial pressure remained constant at 142 mm. Hg.

The abdomen of dog 3 was opened and a cannula was inserted into the distal end of the left renal vein. The pressure recorded was 74 mm. Hg, the arterial pressure measured in the left carotid artery being between 102 and 112 mm. Hg. It is thus evident that the pressure in the renal vein, if it be obstructed, may rise until it almost equals that in the renal artery.

A cannula was then introduced into the proximal end of the left renal vein, and the inferior vena cava was occluded immediately below the entry of the renal veins. The pressure in the proximal end of the right renal vein was thus obtained and found to be 92 mm., or about 7 mm. Hg. In another dog readings varying between 4 and 8 mm. Hg were obtained.

We thus see that the pressure in the distal end of the inferior vena cava normally lies between 25 and 60 mm. when the animal is tied on its back and is under an anæsthetic. This pressure is increased if a considerable quantity of fluid be introduced into the stomach, or if the expiratory phase of respiration be unduly prolonged. Arching of the spine, whether over a box or when the animal lies on its side, is always associated with a great increase in the venous pressure, on one occasion amounting to 220 mm.,

although this large increase could not be maintained. Seeing that the position of lordosis is always associated with albuminuria, and that the minimum pressure recorded in the inferior vena cava in this position was 140 mm. (or 10·7 mm. Hg), it is clear that albuminuria occurs if the pressure in the proximal part of the renal vein is increased by 3 to 4 mm. Hg. It will, moreover, be shown that anuria results if the inferior vena cava be occluded (above the points of entry of the renal veins), although the pressure in this vein probably never exceeds 270 mm. or 20·7 mm. Hg, even for a short while. It is thus evident that anuria does not occur because the blood from the renal vein cannot escape, for the pressure in this vein may rise to over 70 mm. Hg. In other words, anuria occurs long before the pressure in the renal vein is high enough to cause the renal circulation to cease. This point will be referred to again.

The next step was to decide whether the increased pressure in the inferior vena cava was the sole factor in the production of the albuminuria.

I tied a dog in the position of lordosis in the manner described, and waited until the urine from both kidneys contained albumin. I then opened the abdomen, tied and divided the inferior vena cava below the points at which the renal veins enter, closed the abdomen, and left the dog in the same position. The albumin subsequently disappeared from the urine. When the abdomen was opened at the end of the experiment the ends of the inferior vena cava were found to have separated for a distance of one and three-quarter inches, and the kidneys and renal veins appeared normal. It should be added that the onset of the albuminuria had been rapid. On three other occasions, however, this manœuvre failed to cause the albumin to disappear from the urine, and indeed in one case caused anuria. Investigation of these cases showed that in each case the superior end of the vein had travelled so far towards the diaphragm that the right renal vein had become kinked, while the left vein had been unduly stretched.

It is apparent that while the increase of pressure in the inferior vena cava is probably the main factor in causing the albuminuria, traction or kinking of the renal veins may sometimes account for the symptom.

CONSTRICTION OF THE INFERIOR VENA CAVA.

If the inferior vena cava be occluded above the points of entry of the renal veins, anuria may occur immediately, or a little bloody and highly albuminous urine may first be secreted. It is, however, possible, by constricting the inferior vena cava, to cause an albuminuria which clears up during the course of the experiment.

A dog was anæsthetised and cannulæ were inserted into the ureters, which were brought out through the flanks. A double silk ligature encircling the inferior vena cava above the entry of the renal veins was twisted so as to constrict the vein, and the ends brought out through the abdominal incision, which was then almost closed. Albumin+ appeared in the urine from both kidneys within a half an hour. The ligature was then untwisted and withdrawn. Two hours later the urine from the right kidney contained no albumin, but that from the left kidney still contained a trace at the end of three hours.

On Jan. 12th, 1931, two dogs were anæsthetised, and in each case the inferior vena cava was constricted above the points of entry of the renal veins by means of a silk ligature. The wounds were closed, and the dogs returned to their kennels. The operation in each case occupying but little time, both dogs soon recovered from the effects of the anæsthetic and walked about their cages and drank water. The dogs then became comatose, and died during the night, probably within 12 hours of the operation. One dog secreted about 0·5 c.cm. of bloody, highly albuminous urine, while the other secreted none. At the post-mortem examination it was found that the ligatures had tightened so that the veins had become almost occluded. All four kidneys were increased in size and were of a blue-black colour. Obvious hæmorrhages were seen on their surfaces, and on section large red infarcts were seen both in the medullæ and in the cortices. The livers of both dogs (also that of another dog at the end of a similar experiment) showed severe degeneration and cellular necrosis.

On Feb. 23rd a bitch weighing 10 kg. was anæsthetised, and the inferior vena cava constricted in the above described position by means of two linen thread ligatures threaded through a piece of gum-elastic catheter, a modification of Bolton's method. The constriction was hardly apparent. The bitch was returned to her kennel and the wound healed well, but the animal ate little and became thin. On the eleventh day after the operation it was killed. The urine on that day contained a large number of red blood corpuscles, a fair number of casts and epithelial cells but only the faintest trace of albumin. The kidneys were larger than normal, and the medullæ were of a faint purple colour. The following microscopical appearances were observed. Many glomerular capsules contained albumin, were distended, and gave the appearance of being "blown out." A number of glomerular tufts had disappeared, and some were degenerate. The epithelium lining the convoluted tubules showed severe degeneration. The medulla was congested. There were small collections of leucocytes scattered through the section, some of which may have formed since the operation.

On April 13th the inferior vena cava of a bitch weighing 8 kg. was constricted in the same manner to about half its normal size proximal to the ligature. For the first two days after the operation the bitch was drowsy and passed very little urine. On the 16th it passed 200 c.cm. of urine which contained albumin between one and two plus, while a large number of granular, hyaline, and epithelial casts, epithelial cells, red blood corpuscles, and lymphocytes were seen in a drop of the non-centrifuged urine. The bitch subsequently recovered well from the operation, ate heartily, and passed plenty of urine, from which the albumin had disappeared by the tenth day.

On the sixteenth day after the operation the urine contained only a faint trace of albumin, but a considerable number of casts and cells could still be detected in a drop of the urine collected from the lower end of the specimen glass. On this day the animal was anæsthetised and the wound opened. The inferior vena cava was still constricted to the same degree, but the kidneys and renal veins appeared normal. On closer inspection large veins were seen coursing over the capsules of both kidneys. The medulla and the bases of the pyramids of the right kidney were somewhat congested, and in its upper pole there were two red infarcts, each about the size of a split pea, situated close to each other in the outer border of the cortex. The left kidney appeared to be almost normal. Sections of these organs showed relatively slight degenerative changes. The lumina of the convoluted tubules were wider than normal, and it is almost certain that the epithelium lining them had regenerated. There were small areas showing collections of leucocytes, and it is possible that these nephritic changes had occurred as the result of the venous congestion. On the other hand, nephritis is fairly common in dogs, and it would be impossible to arrive at any such conclusion without operating on a large series of animals.

A further dog was examined four days after the inferior vena cava had been constricted to a similar degree. Both kidneys were nearly double their normal size and the renal veins were distended. A large number of venules were seen coursing over both capsules to collect in a leash of veins on either side, which apparently entered the inferior vena cava below the constriction.

The following facts may be accepted:

(1) If the inferior vena cava be occluded above the entry of the renal veins, the animal dies. (2) If this vein be constricted in the same position to a degree just compatible with survival the collateral circulation of the kidney so develops that the organ returns to its normal appearance. A considerable increase of pressure in the renal vein, if it be continued, is thus incapable of maintaining albuminuria. (3) A small increase of pressure in the renal vein, which is insufficient to develop an efficient collateral circulation, may maintain a slight degree of albuminuria and lead to marked degenerative changes in the kidney. (4) Similarly an increase of pressure in the renal vein, which is intermittent and not unduly prolonged, would fail to develop the collateral circulation and would lead to albuminuria. (5) The regenerative powers of the kidney are extremely rapid and efficient.

In order to appreciate why an increase of pressure in the renal vein causes albuminuria and anuria, it is necessary to realise the peculiarities of the renal circulation. The medulla is supplied by two sets of "arteries"—the arteriæ rectæ and the false arteriæ

rectæ. The former vessels arise from the arches which lie in the zone between the bases of the pyramids and the cortical arches, and are smaller than the interlobular arteries which travel outwards to the cortex. The false arteriæ rectæ are the efferent vessels from the glomeruli situated nearest to the medulla. These two sets of vessels form venous plexuses at the apices of the pyramids, from which the venæ rectæ are formed. These veins travel back again through the substance of the pyramids to join the interlobular veins, and form venous arcades in close relation to the arterial arcades. The arteriæ rectæ are smaller than the interlobular arteries, and have a longer and more tortuous course to run, while all the blood must perforce traverse the medulla four times. Moreover, the blood supplying the cortex must needs pass through the medulla, where any increase in the venous pressure is thus first made apparent. As the pressure increases the venæ rectæ become engorged and compress the uriniferous tubules. Ultimately the pressure in the venæ rectæ becomes the same as that in the capillaries, and save for a slight surging to and fro with each heart beat, the blood in the organ becomes stagnant. The distension of the kidney is limited by its capsule. The secretion of urine obviously ceases when the circulation stops. If, however, the pressure in the vein be not sufficiently high to prevent the glomerular circulation, the secretion of urine is nevertheless prevented by the pressure of the engorged medullary vessels which compress the collecting tubules. In this event the Bowman's capsules and the convoluted tubules will become distended with albuminous urine which cannot escape. If the venous pressure be a little lower the urine will be able to escape with difficulty, and as has already been remarked, as much as 4 c.cm. of urine may be expressed from such a kidney.

It is further clear that if the circulation in the kidney ceases, or is seriously impeded, the organ will suffer from the effects of an anoxæmia resulting in degeneration and necrosis of the cells, those of the parenchyma being first affected. Barcroft and Brodie [6] have shown that the kidney is very sensitive to want of oxygen, of which the blood leaving the organ usually contains more than 60 per cent. Moreover, it is only a question of time before hæmorrhages occur.

If the renal vein be compressed for only a few minutes, or if the pressure applied be not sufficient to interfere with the secretion of urine, the kidney assumes its normal appearance soon after the pressure is removed, and no pathological changes, other than perhaps a slight parenchymatous degeneration, may subsequently be detected.

While realising that the pressure in the inferior vena cava varies considerably, and that it is probably higher than normal during anæsthesia, I would nevertheless suggest that the following table might serve to give a rough mathematical conception of these facts as they apply to dogs.†

† The figures recently published by Dr. F. R. Winton make it evident that a smaller increase of pressure in the renal vein is necessary to produce albuminuria in the intact than in the isolated kidney. (Jour. Physiol., 1931, lxxii., 49.)

Pressure in the renal vein, expressed in mm. Hg.	Urine.
4– 8	Normal secretion.
8–10	Oliguria.
10–15	Albuminuria. Red blood corpuscles in urine. (Retention of chlorides, phosphates, and nitrogen ?)
15–20	Hæmaturia.
20 + ...	Anuria.

A low pressure in the renal artery and a high pressure in the renal vein are both associated with a slow glomerular circulation, and a diminished amount of blood passing through the organ.

Experiments in Man.

In a recent paper [7] I stated that I had caused three out of seven volunteers to pass an albuminous urine by keeping them in a position of lordosis for between 30 and 40 minutes. Four of these volunteers lay on the floor with books and pillows under their spines, and only one passed albumin in his urine, and he has since been shown to have kidneys which are abnormally permeable to albumin. I have now performed the experiment on 22 occasions on 17 subjects, while 14 volunteers on 18 occasions have assumed a modified Walcher's position in which the back was well arched and the toes only just touched the floor.

Albuminuria resulted on 16 of the 18 occasions on which Walcher's position was assumed for 40 minutes, and of the 14 volunteers 10 were women, of whom 9 gave a positive result. The urine was passed naturally but, except perhaps in one case, the amount of albumin was such that it could not have been accounted for by any vaginal discharge. Moreover, a specimen of urine was passed immediately before the experiment was commenced, and in no case did it contain any albumin. Miss X passed sugar, but no albumin at the end of the experiment, but her urine the same night contained a cloud of albumin and a considerable amount of sugar. The urine she passed the next morning also contained a trace of albumin and gave a slight reduction of Benedict's solution, but subsequent specimens contained neither albumin nor sugar. Specimens of urine passed later in the day by the two volunteers who gave a negative result were unfortunately not examined for albumin, but it would appear probable that while it is difficult, if not impossible, to cause albuminuria in normal individuals by arching their backs in the prone position, either an immediate, or a delayed albuminuria may invariably be provoked if Walcher's position be adopted for 40 minutes.

CATHETERISATION OF THE URETERS.

On different occasions I have catheterised the ureters of four women, and, after waiting until the secretion of urine from both kidneys was free, placed them in the modified Walcher's position.

CASE 1.—The patient, aged 43, had a left kidney which, as the result of a large stone and abscess formation subsequent to its removal, was practically functionless. The right kidney excreted urine very freely in which there was the faintest trace of albumin. After she had been in Walcher's position for 25 minutes the urine contained albumin+, and still more when the experiment was stopped ten minutes later.

The urine collected after a further half an hour contained a trace of albumin, and the catheters were then withdrawn.

The other three experiments were complicated by the fact that the lordotic position caused a certain amount of hæmorrhage, probably from the ureters. In two of these cases the catheters were in position for nearly an hour before the experiment was commenced, during which time the urine was clear, nevertheless it became tinged with blood soon after the back was arched. The blood, however, being slight in amount, offered no serious difficulties, and some of the specimens were centrifuged to make sure of the results.

CASE 2.—The woman, aged 25, passed a urine which was free from albumin before the experiment, whereas samples collected from both ureters after 30 minutes in Walcher's position contained albumin+.

CASE 3.—Patient, aged 26, the mother of three children, the youngest being 8 months old. Her urine was clear before the experiment, but she passed a trace of albumin from the left kidney, and definitely more from the right,

within 13 minutes of the back being arched. At the end of 36 minutes the urine from the left kidney contained albumin+, whereas that from the right contained albumin++.

CASE 4.—Patient, aged 27, the mother of three children, the youngest being 7 months old. Her urine was free from albumin before the experiment, but within 13 minutes of the commencement of the experiment she passed urine from both catheters which contained a trace of albumin. At the end of 37 minutes the urine from both catheters contained albumin+.

The urine passed by the last three patients at 8 P.M. the same night and first thing the next morning contained albumin, between a cloud and one+, and centrifuged deposits showed red blood corpuscles but no casts or epithelial cells. Subsequent specimens from all three women were free from albumin.

CHROMOCYSTOSCOPY.

On Feb. 19th (nine days after the experiment) 5 c.cm. of indigocarmine were injected intravenously into patients 3 and 4. In patient 3 the dye was seen to issue from both ureters in just under five minutes, and in patient 4 in just over five minutes.

On Feb. 21st both patients were again placed in the modified Walcher's position for 40 minutes, at the end of which time patient 3 still passed a urine completely free from albumin, while that passed by patient 4 contained a trace.

Patient 3 was taken to the theatre, and within half an hour of the conclusion of the experiment indigocarmine (5 c.cm.) was injected intravenously to appear from both ureters in just over six minutes. The urine passed the same night, eight hours after the conclusion of the experiment, contained a cloud of albumin, and that passed the next morning, 11 hours later, contained a trace, the specific gravity of both specimens being 1026. No casts or cells were seen in a drop of the centrifuged urine.

Patient 4 was given a similar injection of indigocarmine just over one hour after the conclusion of the experiment, but the dye failed to appear from either ureter by the end of 18 minutes when the cystoscope was removed, although the ureteric orifices were seen to contract at regular intervals. The urine passed the same night had a specific gravity of 1020 and contained albumin+, while that passed the next morning contained a cloud of albumin. A drop from the centrifuged deposit of the urine passed at night contained red blood corpuscles but no casts.

On March 13th, 18 days later, 3 c.cm. of indigocarmine were injected intravenously into patient 4, and the dye was seen to issue from both ureters in 3 minutes 55 seconds.

On April 1st, at 11.10 A.M., this patient again lay in Walcher's position for 40 minutes. At the end of the experiment the urine contained sugar but no albumin. She was given a glass of water, and at 12.20 P.M. indigocarmine (5 c.cm.) was injected intravenously to appear from both ureters in 3 minutes 55 seconds. On April 2nd, at 1.30 P.M., indigocarmine (5 c.cm.) was again injected intravenously. The bladder was partially emptied, and specimens were then withdrawn at intervals of one minute. It was not until after six minutes that the urine was seen to be faintly tinged with the dye.

EXAMINATION OF URINE.

It has been stated that the urine passed by patient 4 immediately after the experiment contained sugar but no albumin. Four further samples were obtained on April 1st. The first was passed immediately after the midday meal and contained a trace of albumin. The remaining three samples contained a cloud of albumin. Three of the specimens contained acetone and aceto-acetic acid, giving an extreme reaction with liquor ferri perchloridi, while two samples caused a slight reduction of Fehling's solution.

The urine passed first thing in the morning of April 2nd contained a cloud of albumin, while that passed after breakfast not only contained a cloud of albumin but also acetone. The urine withdrawn after the midday meal, before the dye was injected, contained neither albumin nor sugar nor acetone, and four further specimens passed the same day were absolutely free from any abnormal substance, as was the urine passed the next morning.

It is therefore evident that Walcher's position causes albumin to appear in the urine secreted by both kidneys. The ureters were catheterised about three hours after the midday meal, and on each occasion albumin appeared in the urine during the course of the experiment. When, however, the women were placed in this position after a breakfast of bread, margarine, and tea, the urine collected from patient 3 at the end of the experiment contained no albumin, while that obtained from patient 4 contained a trace on one occasion, and none on the other. Later specimens obtained after the midday meal, at which meat was eaten, did, however, contain albumin. These facts can only be explained by assuming that the congestion of the kidney causes a temporary alteration in the permeability of the glomerular tufts, and that the excretion of albumin depends to no little degree on the food ingested.

The fact, however, that Miss X failed to pass albumin in her urine at the end of the experiment, although she had taken meat for her lunch three hours previously, would suggest that the changes in the glomerular tufts, which permit the escape of albumin, may not reach their maximum until some hours after the congestion has operated.

I regret that I have not examined all the urines for the presence of sugar, but it has not been present in the great majority of samples which I have tested for its presence. I have, however, detected it in three urines passed immediately after the experiment, in two of which no albumin was found. I will not attempt to explain the presence of acetone. I only examined one set of urines for this substance, and it may have been present in some of the others.

I am disposed to believe that the congestion of the kidney, caused by Walcher's position, may lead to a delay in the excretion of indigocarmine, although the results of the experiments are admittedly inconclusive. In this connexion it is interesting to note that a delay in the excretion of indigocarmine may be the only abnormality to be discovered in the kidney functions of patients who have recovered from eclampsia.

ALBUMINURIA CAUSED BY SLOW, DEEP BREATHING.

Five men took as few breaths as possible while they stood for 30 minutes in a natural position. The maximum number of breaths taken was 105 and the minimum 53. Only one man failed to pass any albumin in his urine at the end of the experiment, but it was present in the specimen he passed two hours later. One youth had a trace of albumin in his urine before the experiment, after which albumin ++ was discovered, while the addition of acetic acid to the cold urine caused a heavy precipitate. Of the urines passed by the other men, one contained a very faint trace and the others a trace. Albumin was still present in the urines passed by four of the men two hours after the experiment, and in three cases in increased amounts. Nothing could demonstrate more forcibly the varying susceptibility of different kidneys to similar changes in the venous pressure, for the man who passed the most albumin took 105 breaths, while the man who passed none immediately after the experiment took 66.

EGG ALBUMIN.

The medical student whom I mentioned in a previous paper as having passed a large amount of albumin in his urine after remaining for only ten minutes in Walcher's position, took the whites of 12 eggs mixed with 25 c.cm. of absolute alcohol on an empty stomach at 1 P.M. on Jan. 6th, 1931. At the end of one and a half hours his urine contained a trace of albumin, which reached albumin + half an hour later. He still passed a trace of albumin at the

end of three hours. I repeated the experiment on myself but passed no albumin.

A patient who had had a marked albuminuria associated with pregnancy took the whites of ten eggs in 25 c.cm. of alcohol at 5 A.M. 14 days after her confinement, and she was catheterised at 5, 6, 7, and 8 A.M. The specimen collected at 7 A.M. contained a definite trace of albumin, but the other samples contained none. The urine passed by this woman was albumin-free while she remained in bed, but contained a trace when she was up, which was considerably increased after 15 minutes in Walcher's position.

Finally, I may mention that I caused four women in the last month of pregnancy to stand for 17 minutes with their toes pointing outwards and their shoulders bent backwards. Of the four women, two passed urines containing the faintest trace of albumin, while that of the others was albumin-free. At the end of 17 minutes the urines of the first two women contained definitely more albumin, while that of the third and fourth contained a faint trace.

Summary of Results.

(1) The position of lordosis causes dogs to pass albumin in the urine secreted by both kidneys, and is associated with a pressure of about 10 to 12 mm. of Hg in the inferior vena cava.

(2) Owing to the peculiarities of the renal circulation, the kidney permits the escape of albumin if the pressure in the proximal end of the renal vein be raised by only 3 to 4 mm. Hg. If, however, the increase of pressure in this vein be considerable and continuous, the collateral circulation will develop and the albumin will disappear from the urine.

(3) The modified Walcher's position almost always provokes the passage of an albuminous urine.

(4) Whether or not the albumin appears in the urine at the conclusion of the experiment depends to a certain extent on the food previously ingested.

(5) The congestion of the kidney, so caused, may alter the permeability of the kidney to albumin for at least 24 hours, and it seems probable that the maximum effects may not be produced until some hours after the congestion has operated.

(6) Walcher's position appears to cause a delay in the excretion of indigocarmine. This effect is not produced until some hours after the position is adopted, but may persist for several days.

(7) Walcher's position may cause sugar to appear in the urine, even when albumin is absent, and, on one occasion, caused acetonuria.

(8) Red blood corpuscles may be found in the urines of patients after lying in Walcher's position, but casts have not been seen. It is, however, certain that even the slightest degree of venous congestion in the kidney may cause the passage of hyaline and granular casts, providing it be maintained for a sufficient period of time.

(9) A mild exaggeration of the normal curvature of the spine in women during the last few weeks of pregnancy may cause the passage of albumin.

(10) A slow respiration-rate in the standing position provokes albuminuria.

(11) The ingestion of the whites of ten eggs in 25 c.cm. of alcohol appears to be a useful test for functional albuminuria.

Conclusions.

I suggest that the albuminuria associated with pregnancy could be accounted for by mechanical means, chief of which are the lordosis, the diminished thoracic capacity associated with the latter months of pregnancy, and the weight of the uterus. It is certainly of interest that the addition of acetic acid to the cold urine of these patients frequently causes a definite precipitate. The lordosis alters the diameter of the inferior vena cava and affects the flow of blood according to the formula $F \propto \frac{vd\rho}{\mu}$ where F represents the flow, v the volume, ρ the specific gravity, and μ the viscosity of the blood, while d represents the diameter of the vein. A full stomach and a loaded colon may press on the inferior vena cava and be pressed on by the uterus when the woman lies in the recumbent position. The actual onset of the albuminuria is probably determined by the diet.

It cannot be too strongly emphasised that in about 20 per cent. of the cases of eclampsia the convulsions occur shortly after the urine is known to be free from albumin. Indeed, the patient may recover from the disease without ever passing an albuminous urine. Conversely, with suitable treatment, the albumin may almost disappear from the urine of a patient, but she may nevertheless develop eclampsia. Moreover, sections made from the kidneys of patients who die from eclampsia or accidental hæmorrhage but infrequently show the changes associated with either acute or chronic nephritis. It is surely illogical to postulate changes in the kidneys of patients who recover, which are not discovered in the presumably more serious cases who die, particularly when it is found impossible to demonstrate their presence by any known tests. Congestion of the kidneys, however, renders them permeable to albumin and more prone to nephritic changes.

Cook [8] expressed the opinion in 1924 that mechanical factors might play a part in the causation of the albuminuria of pregnancy, a view widely held during the second half of last century, but was unduly influenced by the fact that he found albumin in the urine secreted by both kidneys in the patients he examined. The description given by Paramore [9] of the microscopical appearances seen in the kidneys of patients who die from eclampsia agrees with those I have observed in a considerable number, but not all, cases, but these are precisely the changes caused by increasing the pressure in the renal vein.

If my view be correct, albuminuria, per se, bears no relationship to the toxæmias of pregnancy, except that disturbances of the metabolism and diet are factors in the causation of both. Albuminuria is an important symptom, but is only of serious concern when associated with a high or an increasing blood pressure. An increasing blood pressure is of grave significance even though no albumin be present in the urine, and it is a matter of real concern that the sphygmomanometer does not always form part of the equipment of an antenatal clinic.

Finally, I would suggest that (*a*) Walcher's position, (*b*) the ingestion of the whites of eight eggs in 25 c.cm. of alcohol on an empty stomach, are two tests which might be of value in testing the permeability of the kidneys of those women who suffer from albuminuria when pregnant, but whose kidneys at other times are normal, as judged by the usual kidney function tests.

I wish, in conclusion, to express my gratitude to Prof. E. B. Verney for his kindness to me, and for the facilities he has placed at my disposal at the Pharmacological Laboratory, University College, where these experiments were performed. He is, however, in no way responsible for any views expressed in this paper. I have also to thank Dr. W. G. Barnard, pathologist to University College Hospital, for cutting my sections, and for so generously helping me with his opinions, and Dr. A. D. Morris, the acting medical superintendent of Hammersmith Hospital, for his invaluable coöperation.

(*Bibliography at foot of next page.*)

PULMONARY ASBESTOSIS COMPLICATED BY PULMONARY TUBERCULOSIS.

"Subtile particles offensive to human nature."
—*Ramazini of Padua.*

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IT is well known that the subjects of certain forms of pneumonokoniosis are prone to pulmonary tuberculosis. The recent discovery that asbestos workers are often the victims of an occupational disease prompts the question whether pulmonary asbestosis may also prepare the way for a tuberculous invasion of the lungs, or aggravate an existing infection. The importance of the question is obvious. Female workers do not, as a rule, follow occupations which involve the risk of pneumonokoniosis, but they are employed in considerable numbers in the spinning and weaving of asbestos fibre. Our series of 57 cases of pulmonary asbestosis includes 18 males and 39 females, eight of whom were young girls from 18 to 21 years of age. It is well known that adolescent and young adult females are specially susceptible to pulmonary tuberculosis. Any occupation which exposes the lungs to risk of damage at this period of life is therefore undesirable. Indeed, there seems to be a case for excluding them whenever possible from the industry.* Apart from these considerations, unless the relationship between asbestosis and tuberculosis is determined, difficulties and misunderstandings as to claims for compensation are likely to arise. In recent years pulmonary disease has too often been "turned to commodity," and fairness to employer as well as to employed calls for a clear understanding of the problem.

One important set of figures bearing on the incidence of pulmonary tuberculosis among asbestos workers is already available. Merewether [1] found evidence of active tuberculosis in the chests of three out of 374 asbestos operatives examined whilst at work. He concluded that "no outstanding susceptibility to pulmonary tuberculosis was disclosed either among asbestos workers as a class or among those with fibrosis." He pointed out, however, that the supervention of tuberculosis on a lung already damaged by fibrosis would cause an exacerbation of pulmonary symptoms. Work would probably be abandoned as the result of this, and a drift of the tuberculous from the fibrosis-producing industry is only to be expected. The number of tuberculous individuals discovered therefore at factory examinations does not necessarily show the incidence of the disease.

In the locality with which we are concerned however, such workers can be traced by reference to the local tuberculosis dispensary. Most of the patients in our own series had attended a tuberculosis dispensary before visiting Victoria Park Hospital. Our figures therefore probably indicate the maximum incidence to be anticipated, as they refer not to the incidence of tuberculosis in asbestos workers, but to the number of cases of tuberculosis discovered among asbestos workers suffering from symptoms of chest trouble. At the commencement of the inquiry most of the patients were dispensary "tuberculosis suspects" referred to one of us (W. B. W.) by Dr. Leonard Williams, the tuberculosis officer for Barking. Later cases might have been classed as "asbestosis suspects," that is, they were sent as cases of suspected pneumonokoniosis, though the possibility of tuberculosis as the main or contributory cause of symptoms has obviously been kept in mind.

SYMPTOMS.

The symptoms and physical signs of uncomplicated pulmonary asbestosis may be summarised briefly:—

Irritable cough, scanty expectoration, shortness of breath, progressing to a distressing dyspnœa on the slightest exertion, pains in the chest and decline in weight, often followed by extreme emaciation. The complexion is "earthy." Cyanosis is usually but not invariably present. Clubbing, if present, is of slight degree. On auscultation, fine dry crackles are usually heard over the lung bases posteriorly, and in the axillary regions. Fine pleural friction is often heard. Percussion may reveal some impairment of resonance at the lung bases. Negative points are the absence of hæmoptysis—except perhaps an occasional trace of colour in the sputum—and the slight degree of expectoration. Sputum examination reveals the characteristic asbestosis bodies. X ray examination shows a diffuse fine fibrosis affecting chiefly the lung bases while sparing the lung apices and infraclavicular regions.[2]

The symptoms, physical signs, sputum, and skiagrams of pulmonary asbestosis are therefore characteristic and sharply differentiated from those commonly associated with tuberculosis.

NUMBER AND NATURE OF CASES.

Twelve out of a total of 57 cases of pulmonary asbestosis showed evidence of pulmonary tuberculosis (two obsolescent, ten active). Four of the 12 died, and at post-mortem examination evidence of obsolescent tuberculosis was found in two and of active tuberculosis in two.

—	All cases.	Cases complicated with tuberculosis.	Uncomplicated cases.*
Range of ages ..	18–60	19–42	18–60
Average Age—			
Male	41·7	42·0	41·5
Female ..	30·5	29·2	30·9
All cases ..	34·0	32·4	34·4

* Three cases (1 male, 2 female) deducted, in which the age had not been obtained.

The *ages* are shown in the Table: 31·5 per cent. of the total number of cases were 25 years of age and

* In draft regulations, just issued, the Home Secretary is proposing to exclude young persons from certain branches of the asbestos industry.

(*Continued from previous page.*)

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under (16 females and 1 male), and 14·8 per cent. were 45 or over (4 males and 4 females).

Sex.—The total number of males with pulmonary asbestosis was 18, of whom one had active tuberculosis. The total number of females was 39, nine of whom had active tuberculosis.

Cases with Pulmonary Tuberculosis.

These cases may be summarised as follows :—

1. Generalised tuberculosis as a terminal event, one case (woman aged 21).
2. Acute phthisis, with rapid spread and early cavitation, two cases (women aged 35 and 20).
3. Extensive subclavicular infiltration, but of less acute type than above, two cases (women aged 32 and 19½).
4. Chronic fibroid phthisis, five cases (four women aged 38, 31, 33, and 40, and one man aged 42).
5. Obsolescent pulmonary tuberculosis discovered at autopsy, two cases (woman aged 34 and man aged 42).

Bacteriological proof of tuberculosis was forthcoming in all with the exception of one instance under (4) in which diagnosis was made on X ray evidence of cavitation at one lung apex.

One example of severe tuberculous infection in already seriously damaged lungs may be of interest.

A girl worked as an asbestos spinner from the age of 16 to 20 years. Dry cough developed after three years' exposure to asbestos dust. Cough and lassitude caused her to abandon work a year later. In October, 1929, she was admitted to Victoria Park Chest Hospital. Physical signs were suggestive of a basal pulmonary fibrosis. A skiagram showed clouding of both lower lobes. No evidence of tuberculosis. No sputum. In March, 1930, patient readmitted under Dr. Scott Pinchin with signs of pneumonia in left lower lobe. Temperature fell by crisis three days after admission, but signs at left base persisted, indicating a permanent fibrosis. In October, 1930, patient attended out-patient department. Impaired percussion note and bronchial breathing were still noted over the lower half of the left lower lobe. A skiagram showed thickening of the right interlobar septum and a "ground-glass" appearance of the lower three-quarters of right lung fields due to a fine stippling. Lower half of left lung was veiled by an almost uniform haze, through which left border of cardiac shadow could be seen. No X ray evidence of tuberculosis. Tubercle bacilli present in sputum as well as asbestosis bodies. Patient admitted to Black Notley Sanatorium in January, 1931. On admission temperature was of hectic type with evening rises to 102° F. Under treatment by rest the temperature subsided, but in April signs of phthisis developed in the right upper lobe and a skiagram showed massive tuberculous exudation in this area with subclavicular cavitation.

Fortunately, not all cases are as severe as this. The following is a record of a less severe case :—

Female, aged 19. Sputum contained asbestosis bodies and tubercle bacilli at time of admission. Physical signs and skiagram indicated involvement of the whole of the left lung in fibro-caseous disease. Right lung appeared normal and degree of fibrosis due to asbestosis evidently slight. Artificial pneumothorax produced a satisfactory collapse of all save lower part of left lung, which is held out by adhesions. Collapse has not been followed by dyspnœa, and the prognosis would appear to be favourable.

An example of a sluggish tuberculous infection of the middle-aged type, apparently grafted on to a pneumonokoniotic lung, is afforded by another case :—

Male, aged 42 years, asbestos sawyer for seven years between 1918 and 1928. Had been under dispensary observation since 1924, tubercle bacilli first demonstrated in sputum in 1927. Skiagram taken at end of 1928 showed the appearances typical of an advanced pneumonokoniosis and only radiological evidence of tuberculosis found in presence of some small granular opacities in left subclavicular region. Physical signs, those of a pulmonary fibrosis. [In such cases it is difficult to distinguish the respective share of asbestos and tubercle in its production.]

AUTOPSY RECORDS OF FOUR FATAL CASES.

Four cases have been encountered in which there was evidence of tuberculosis, obsolescent or active, at the post-mortem examination.

1. Female, aged 34. Case recorded by Burton Wood and Page.[3] Commenced work as weaver in asbestos factory at age of 21. After about five years began to have symptoms of ill-health, owing to which, at the age of 30, she relinquished work. When she came under observation some five months before death, physical signs were those of pulmonary asbestosis. Sputum only available on one occasion and negative for tubercle bacilli. Eleven samples of fæces tested for tubercle bacilli all negative. Skiagram typical of pulmonary asbestosis. No evidence of chronic tuberculosis. At the post-mortem examination one lymph gland at the bifurcation of the trachea was found to be caseous and slightly calcified. No tubercle bacilli and no giant cell systems were found in sections and no evidence of tuberculosis found in other organs. Cause of death—pulmonary asbestosis aggravated by broncho-pneumonia.

2. Male, aged 42, had worked in asbestos factory from 1921 to 1929. History of dry pleurisy in 1926 and in 1927. On admission radiogram showed signs of right spontaneous pneumothorax. Tubercle bacilli were not found in sputum (12 examinations), but asbestosis bodies present. Patient died two months after admission. At the post-mortem examination (made by Dr. D. S. Page) pleuræ found thickened and adherent and no sign of pneumothorax. No signs of tuberculosis in the lungs, but, adherent to the liver, partly behind the gall-bladder, was a calcareo-caseous mass about 1 inch in diameter, thought to be the remains of a tuberculous gland. Sections of this showed no giant cell systems and no tubercle bacilli. Some calcareous mesenteric glands.

3. Female, aged 35, began work as spinner in asbestos factory at age of 20 and continued for 13 years. No history available for last two years. We are indebted to Dr. N. Kerr, of Barking, for sending us the left lung of this patient after the post-mortem examination. Pleuræ uniformly thickened, and over the lower lobe covered with shaggy adhesions. Upper lobe showed (1) a small round caseous nodule about size of large pea, about half an inch from apex, (2) a subpleural calcareous nodule about quarter inch in diameter, (3) a large area about one and a half inches in diameter of finely honeycombed lung, typical of pulmonary asbestosis, and (4) an irregular breaking down area with cavity about one inch by half an inch in extent, with ragged wall, in the central portion of the upper lobe. Both lobes showed a few miliary tubercles, very sparsely scattered. Histologically, the lung revealed the usual signs of pulmonary asbestosis. Bronchioles showed more or less destruction of lining epithelium. Numerous asbestosis bodies in deeper layers and in peribronchial tissue. Peribronchial deposition of connective tissue irregular in distribution. Pulmonary alveoli were much altered, in some areas completely obliterated by connective tissue, in others filled with fibrin, in others again, asbestosis bodies with desquamated cells. Here and there small typical peribronchial caseous areas with the usual peripheral layers of epithelioid cells and connective tissue. Very few giant cells. Both tubercle bacilli and asbestosis bodies present in the caseous patches, the former sometimes lying in clumps alongside the asbestosis bodies.

4. Female, aged 21 (record published by Burton Wood and Page[4]), worked in asbestos factory for 15 months (1927–28) as spinner. Gave up work on account of loss of appetite and lassitude. Father died of pulmonary tuberculosis in November, 1928. When first seen in March, 1929, was extremely thin, having lost 35 pounds in seven months. Chest expansion poor, some impairment of percussion note at right base, but no adventitious sounds. Skiagram showed appearances suggestive of old fibrotic tuberculous lesion of right apex, in the left subclavicular region a small cavity and a few granular shadows. Right dome of diaphragm elevated. No radiographic evidence of pneumonokoniosis. In May, 1929, a second skiagram showed increase in extent and a blurring of the outlines of the shadows. Slight occasional expectoration but three specimens of sputum examined for tubercle bacilli negative. Bacilli found in fæces on three occasions. After admission to hospital physical signs in lungs showed little change, but a third skiagram indicated rapid spread of tuberculous disease in both lungs with extensive cavitation of left side. Died, August 23rd, 1929. At autopsy both pleural cavities obliterated by adhesions; upper two-thirds of both lungs extensively involved in caseous tubercle, with numerous cavities on both sides. Tuberculous peritonitis, with intestinal ulceration; ovaries and Fallopian tubes caseous. Practically no signs of limitation of the disease by fibrous tissue; picture one of florid tuberculosis, characteristic of young adult. Histology of lungs as follows: Caseous areas present, containing large numbers of tubercle bacilli, but very little fibrosis; giant cells scanty. Asbestosis bodies scattered irregularly, singly and in small groups. Apparently unaltered asbestos fibres present and all stages of thickening up to typical bodies. Fibrosis not marked.

Discussion, Summary, and Conclusions.

Obsolescent tuberculosis may remain quiescent in spite of exposure to asbestos dust. In one such case (female, aged 34) there had been nine years', and in another (male, aged 42) eight years' exposure. Both cases were verified post mortem. The focus was in mediastinal glands in one case and abdominal glands in the other.

In a total of 57 cases of pulmonary asbestosis there were ten of active tuberculosis, two of them fatal. Of the non-fatal cases, seven had tubercle bacilli in the sputum, the eighth had a well-marked apical cavity. The two fatal cases were verified post mortem. [Since this record was compiled another case has died and a post-mortem examination has been made; we believe two more also have died, but we have no record.]

It is probable that the cases with tuberculosis are more prone to seek advice and that our proportion with tuberculosis (17·5 per cent.) in pulmonary asbestosis represents a maximum. The proportion found amongst operatives actually at work (vide Merewether's series) probably represents a minimum (0·8 per cent.). At any rate, there is evidence that the incidence of active pulmonary tuberculosis in a mixed group of asbestos workers is by no means negligible.

Of our total of 57 cases of pulmonary asbestosis, 17 are known to be still at work, 10 are dead, and most of the remainder have discontinued asbestos work.

Of the ten cases of active tuberculosis, nine were females. The ages of these cases (when first seen) were 19, 20, 21, 31, 32, 33, 35, 38, and 40 respectively. The one male was aged 42.

With regard to the length of exposure, one female, aged 19, began work at the age of 16. She worked for three months picking up bobbins (not exposed to dust), then discontinued work for 18 months, and returned for further three months to spinning and weaving. One (aged 21) had had 15 months' exposure. The remaining seven had had periods varying from four to 13 years, and in four instances they had started work in the factory before the age of 21. That is, of these nine females six had started work before this age. The male case had had seven years' exposure.

Clinically, the ten active cases were classified as follows: generalised tuberculosis as a terminal event (one female); acute phthisis (two females); extensive subclavicular infiltration of a less acute type (two females); chronic fibroid phthisis (four females, one male).

In the two active cases which came to the post-mortem room, the tuberculosis was of the acute caseous type, with little or no sign of limitation of disease by fibrous tissue. One case showed generalised terminal spread.

Histologically, the tuberculous lesions in the two fatal cases were characterised by marked caseation. In the portions of lung where the lesions had not advanced far the caseous areas were peribronchial in distribution. There were very few giant cells and little round-cellular infiltration or connective tissue formation around the periphery of the nodules—in short, caseation and little else. Asbestos fibres were present in the caseous areas as well as asbestosis bodies. In one case (the third of the four fatal ones described above), tubercle bacilli in clumps and asbestosis bodies were found lying side by side. It is possible, but unlikely, that asbestos fibres can have invaded the caseous areas. It seems more probable that as a result of secondary infection with *B. tuberculosis* patches of caseation had developed around the minute areas containing fibres and bodies.

Gardner and Cummings, working with a strain of *B. tuberculosis* of feeble virulence, noted that in guinea-pigs the development of tuberculous caseation in an asbestosis area resulted in the destruction of the asbestosis bodies.[5] Their animals had, however, been kept alive for a long time. It is, of course, possible that the tuberculous lesions noted in our cases were more recent than those in their animals, and that the asbestosis bodies therefore had not had sufficiently long exposure to effect complete destruction. There is also a possibility that the reaction of the tissue in the two cases is dissimilar.

Histologically, in the lesions of pulmonary asbestosis the asbestosis (foreign body) giant-cell is a marked characteristic. Situated in the early formed granulation tissue areas, this cell generally contains small asbestos fibres and sometimes actual asbestosis bodies. It must be carefully distinguished from the true tuberculosis giant-cell. Tuberculosis infection cannot be assumed on histological grounds alone without the finding of intact tubercle bacilli.

It is impossible to draw definite conclusions from this small record as to whether tuberculosis or asbestosis was the antecedent disease. In two cases the exposure to asbestos dust preceded the onset of signs of tuberculosis by 6 and 15 months respectively; in the others the exposure preceded the tuberculosis by from 4 to 13 years.

Our acknowledgments are due to Dr. Leonard Williams, medical officer of health and tuberculosis officer for Barking, for his constant coöperation, without which our investigations would have been impossible.

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DIRECT LARYNGOSCOPY AND ASPIRATION IN LARYNGEAL DIPHTHERIA.

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"THE coexistence of laryngeal symptoms with even a small amount of unlikely looking exudate on the fauces may be taken for practical purposes as a proof of diphtheria." Ker [1] thus expresses what has proved to be a satisfactory rule for the diagnosis of diphtheritic laryngitis. It is well to remember, however, that certain coccal infections are occasionally met with in which laryngeal symptoms are associated with deposit on the fauces. In the absence of faucial exudate, and indications of diphtheritic infection of the nose, the ætiological factor, giving rise to symptoms of "croup" in a child affords a difficult and anxious problem. The diagnosis between catarrhal inflammation of the larynx and primary diphtheritic infection does not rest on a satisfactory basis. Obstructive symptoms arising from a foreign body impacted in the back of the throat, even after two days close observation, have been known to mislead an experienced clinician. It is difficult to understand why the laryngoscope has not been employed as a routine in fever hospital practice.

Gover,[2] in 1918, from his experience of direct laryngoscopy in 189 cases of "croup" admitted to the Willard Parker Hospital, came to the following conclusion: "There is no other method nearly as accurate in the diagnosis of laryngeal diphtheria." He reports that in 112 cases with membrane in the larynx only 59 had membrane on the fauces. It is worth noting that in one-fourth of the cases showing membrane in the larynx the respiratory difficulty was slight, whilst severe symptoms of croup were noted in one-sixth of the group not showing membrane in the larynx.

The laryngoscope has been employed at the City Hospital in the diagnosis of all doubtful cases of laryngitis in children during the past two years.

DIRECT LARYNGOSCOPY.

The apparatus and method are as follows:—

Apparatus.—Laryngoscopes, Chevalier Jackson pattern, infant and child sizes. Spare lamp carriers, and spare bulbs. Dry cell battery with rheostat. Six feet of flexible cable. Swab sticks eight inches long with wool tip firmly attached. Tongue depressor.

Method.—The child, firmly enveloped in a blanket, is placed on the operating table in a recumbent position. The height of the table is adjusted to suit the operator. A sandbag four inches thick is placed under the shoulders. The head is then flexed as far back as possible. One nurse, standing on the right of the patient, steadies the head in the midline by a hand placed on either side. It is not necessary to hang the head over the edge of the table. Another nurse, on the left of the patient, controls the movements of the limbs and trunk. Partial darkening of the room facilitates the inspection of the larynx.

The operator dons face mask and goggles (the latter suitably treated to prevent condensation), opens the mouth with a tongue depressor and rapidly slides the laryngoscope, held in the left hand, over the dorsum of the tongue in the midline until the epiglottis is picked up. The presence of membrane low down on the posterior pharyngeal wall and on the epiglottis is noted. The tip of the laryngoscope is then dipped under the epiglottis which is hooked back and the instrument slid down to the root. A considerable amount of pressure on the handle of the laryngoscope may be required at this stage to obtain a view of the entire glottis. Once the epiglottis is hooked back the child breathes with comfort throughout the examination. In addition to the appearance of the upper aspect of the larynx and the true cords particular attention should be paid to the subglottic region.

The main features of interest are: (1) the presence of membrane; (2) the degree of congestion and œdema, particularly subglottic; (3) the amount of muco-purulent secretion; (4) evidence of ulceration; and (5) the presence of a foreign body. A culture is taken by inserting a swab stick eight inches long through the lumen of the laryngoscope. The firmly attached cotton-wool tip, in addition to being gently rubbed over the upper aspect of the larynx, should be inserted into the subglottic region as spasm relaxes.

The laryngoscope is then rapidly withdrawn.

The employment of the laryngoscope in some 80 patients from 1 to 12 years of age has shown that the technique is simple, easily acquired, and devoid of harm. To actually see pathological changes which otherwise could only have been surmised has been not only a source of great satisfaction but extremely educative. Where there is typical faucial exudate the use of the laryngoscope is superfluous in arriving at a diagnosis, but has proved of value in deciding what operative procedure should be followed.

In the recognition of primary diphtheritic laryngitis or of the presence of a foreign body in the larynx this procedure is of great value. In 15 children admitted to hospital suspected to be suffering from laryngeal diphtheria there was no clinical evidence of a diphtheritic infection of the fauces or nose. The laryngoscope revealed membrane in the larynx in five of these cases. The membrane was situated both above and below the true cords in two patients, whilst, in the remaining three it was confined to the subglottic region. In a sixth case, whilst no definite membrane was seen, a culture from the larynx showed numerous morphological Klebs-Löffler bacilli. The symptoms of croup were severe in only two of the six cases. The absence of membrane, accompanied by negative cultures, led to a diagnosis of catarrhal spasm or catarrhal laryngitis in the remaining nine patients. Two of these children suffered from persistent and alarming dyspnœa: one required intubation.

One child with no exudate on the fauces, but with a profuse purulent rhinitis and severe symptoms of croup, showed extensive membrane in the larynx.

In another case the presence of exudate on the tonsils, accompanied by severe obstructive symptoms eventually necessitating tracheotomy, might have been regarded as diphtheritic had not laryngoscopy revealed a grossly congested and œdematous larynx, without typical membrane, but with profuse secretion and superficial ulceration. Repeated negative laryngeal cultures corroborated the negative faucial findings. Cultures from the nose showed a few morphological diphtheria bacilli. A staphylococcus was regarded as the infecting organism.

TREATMENT BY ASPIRATION.

Examination of the larynx has shown that the dyspnœa in diphtheritic laryngitis is due to one or other, or a combination of the following factors: membrane either attached, or more commonly partially detached, and drawn into the lumen of the glottis; inflammatory œdema in the subglottic region; tenacious muco-purulent secretion; glottic spasm.

In 29 patients Gover[2] removed loose membrane from the larynx with forceps, resulting in marked respiratory relief in 23; in 14 of these the relief was permanent. He noted that the removal of the membrane was followed by little if any hæmorrhage.

In 1922 Thomson[3] reported favourable results in 30 severe cases of laryngeal diphtheria following the removal of loose membrane and muco-purulent secretion by means of a gauze plug attached to an applicator. This was passed through the lumen of the laryngoscope into the subglottic region and immediately withdrawn; surprising relief was obtained. The applicator treatment was repeated as often as indications arose. He adduces evidence to show that this procedure saved the necessity of intubation in many patients, and resulted in a considerable reduction in mortality. No ill-effects were noted.

Gover and Hardman,[4] in 1923, reported very favourably on six months' experience of the routine employment of suction in the treatment of 50 cases of croup in the wards of the Willard Parker Hospital. Either metal tubes or silk elastic catheters were passed into the larynx through the lumen of the laryngoscope, and suction applied by means of an electric pump. Whilst guarded in their conclusions, they formed the opinion that the treatment by suction markedly lessened the number of cases requiring intubation, and thus influenced the mortality.

Litchfield and Hardman,[5] in 1923, from their experience in the croup service of the same New York hospital, concluded that the aspiration method of treatment is especially suited for cases in which the membrane is situated low down in the trachea. They are also of the opinion that a lowered mortality resulted.

In his report to the Metropolitan Asylums' Board in 1929, Joe,[6] from personal observations at the Willard Parker Hospital, states: "The aspiration treatment of laryngeal diphtheria makes a distinct

advance on the methods presently at our disposal for dealing with this condition." Apparently the physicians in New York and Boston who had prolonged experience of the method were unanimously in favour of it.

Apparatus.—Electric suction pump. Wash bottle. Three laryngeal suction-tubes, Willard Parker Hospital model, with terminal aperture, and an external diameter of 5 mm., 6 mm., and 7 mm., respectively. Three feet of stout rubber tubing. Sterile paraffin. Basin of sterile water.

Treatment by aspiration was first tried in the wards of the City Hospital two years ago. Whilst the metal suction-tubes of simple design originally employed functioned reasonably well, it was soon realised that a simple water pump was inadequate. The electrically driven Atmos pump, in use for the past year, has proved highly satisfactory. The pump has been fitted on a special base which includes the wash bottle.

Method.—Water having been poured into the wash bottle to a depth of two inches the hinged airtight lid is screwed down, and the exit tube screwed on to the pump nipple. The inlet tube is attached to a suction-tube of suitable size. Before inserting the laryngoscope sterile water should be drawn through the suction-tube to see that the apparatus is functioning perfectly. The glottis having been exposed, the suction-tube, lubricated with sterile paraffin, is introduced through the lumen of the laryngoscope and the upper aperture of the larynx rapidly cleared of membrane. On relaxation of the glottic spasm the tube should be slipped between the true cords, and membrane and secretion removed from the subglottic region. The tube is then withdrawn—sterile water sucked through the lumen—and reintroduced, this time well down into the trachea. Three or four applications may be required to clear the airway. The whole operation can be performed very rapidly. An anæsthetic is not required. Hæmorrhage following the separation of membrane has not been a troublesome feature. Should bleeding arise the local application of adrenalin is recommended.

CASES SUBJECTED TO ASPIRATION.

Thirty-seven patients with moderate or severe symptoms of croup have been aspirated. Suction was performed once in 30 cases; on two occasions in six patients, and three times in one child. Membrane was removed in 24 patients, whilst in seven others muco-purulent secretion only was aspirated. In six children nothing was obtained. Aspiration resulted in immediate relief in ten patients. In other ten cases the breathing was definitely easier following the removal of membrane or secretion. No definite benefit from the procedure was noted in 17 patients, three of whom were suffering from a tracheo-bronchial involvement. Nine children required operation following aspiration.

Aspiration saved the necessity for intubation or tracheotomy in seven patients. The following is a typical case:—

A boy, aged 6 years, admitted to hospital at 4 P.M. on Jan. 22nd, 1931, had been ill three days. On admission moderate persistent dyspnœa with retraction of intercostal spaces and epigastrium was noted. The colour was good. The pulse was rapid, but of good volume, and not of paradoxus type. There was extensive membrane covering both tonsils, the faucial pillars, and on the posterior pharyngeal wall. On admission, 10,000 units of antitoxin were injected into a vein, and 20,000 units intramuscularly. As the respiratory distress was not regarded as severe enough to warrant operation he was tided over the night with steam and sedatives. At 9.30 A.M. the following morning the dyspnœa was severe, the colour unsatisfactory, and pulsus paradoxus present. Immediate operative measures were indicated. Examination revealed extensive thick membrane covering the upper aspect of larynx, flapping between the true cords, and encroaching on the subglottic space. The membrane appeared loosely attached. There was no obvious œdema. Aspiration resulted in the removal of 40 to 50 fragments of membrane, several one to two centimetres or more square. During the process paroxysms of coughing resulted in the detachment of low tracheal membrane, which, on showing at the glottis, was promptly removed by suction. There was immediate and complete relief. The child was returned to bed breathing sweetly, and promptly fell asleep. Whilst slight huskiness persisted for a few days no further respiratory difficulty arose. The child recovered.

In two patients who had been intubated on admission to hospital, treatment by suction saved reintubation. The following are the main features of one case:—

A boy, aged 2 years, was admitted to hospital on Feb. 18th, 1931, the alleged second day of illness. Symptoms of severe respiratory obstruction were present on admission. There was a patchy exudate on both tonsils but no rhinitis. Examination of the larynx revealed moderate œdema and congestion, but no membrane was seen. Owing to œdema and absence of visible membrane the case was not considered suitable for aspiration. A No. 1 intubation tube was inserted. The tube was removed on the 23rd. Dyspnœa reappeared on the 25th and persisted throughout the night. The child's condition on the morning of the 26th urgently required operative relief. Examination of the larynx showed that the respiratory difficulty was due to fragments of membrane obstructing the glottis. The membrane was removed by suction with immediate and complete relief. The child gave no further trouble and made an uninterrupted recovery.

TRACHEO-BRONCHIAL DIPHTHERIA.

In five children the diphtheritic infection had spread from the fauces and larynx into the trachea and bronchi. All five showed typical clinical signs of this dreaded condition on admission to hospital. Two cases, practically moribund, were tracheotomied immediately. Both died within a few hours. The remaining three patients were aspirated. Whilst numerous fragments of membrane, one piece 7 cm. long, were removed from the larynx and trachea in each case, yet the dyspnœa persisted. Aspiration through a laryngoscope is apparently not effective where the membrane is located in the bronchial tree. All three patients died within 24 hours of entering the ward.

Whilst Gover mentions the employment of suction through a bronchoscope in four cases of tracheo-bronchial diphtheria, followed by recovery in two, those interested in the aspiration treatment of this very dangerous condition should refer to the papers by Lynah.[7]

ANTITOXIN DOSAGE.

From 8000 to 10,000 units of antitoxin were injected intravenously on admission in 12 patients with marked symptoms of croup. The total antitoxin dosage in a series of 50 cases of laryngeal diphtheria varied from 16,000 units to a maximum of 50,000 units. Six of the cases in which aspiration proved so efficacious had received an intravenous injection of antitoxin.

Gover and Hardman stress the importance of administering diphtheria antitoxic serum intravenously in cases subjected to suction. In the tracheo-bronchial type of case the injection of antitoxin into the blood stream is essential.

DANGER OF ASPIRATION TREATMENT.

In the hands of an experienced operator laryngoscopy followed by suction may be regarded as a safe procedure. That it is well to carefully consider the cardiac condition before subjecting the child to the strain of repeated aspirations is shown by the following unfortunate incident:—

A robust boy, aged 2 years, was admitted to hospital at 3.20 P.M. on April 26th, on the third day of illness, with severe symptoms of croup. The colour was unsatisfactory, and the pulse rapid, soft, and of paradoxus type. There was an extensive sheet of membrane on the posterior pharyngeal wall, but no rhinitis. Laryngoscopic examination showed that the upper aspect of the larynx was covered with a thick sheet of membrane. Membrane was flapping between the cords, and more was seen in the subglottic region. Well-marked subglottic œdema was noted. Aspiration performed at 3.30 P.M. resulted in the removal of numerous fragments of membrane and tenacious muco-purulent secretion. Whilst considerable respiratory relief

resulted, dyspnœa still persisted. Ten thousand units of antitoxin having been injected into a vein, and 20,000 units intramuscularly, the child was returned to bed. At 6 P.M. it was again considered necessary to aspirate. A few fragments of membrane and some muco-purulent secretion were obtained from the trachea. It was noted that the right vocal cord was not moving freely. Dyspnœa still persisted. The breathing became very distressed about 6 A.M. the following morning; aspiration again applied proved fatal, the child dying on the table from cardiac failure. Where subglottic œdema is the main cause of the respiratory distress operative measures are apparently preferable to repeated attempts at aspiration.

INTUBATION BY DIRECT VISION.

In the practice of intubation by the O'Dwyer method the sense of touch is the guiding factor. In the hands of an expert the operation, in by far the majority of patients, can be performed with great rapidity and the minimum of trauma. In many cases it has much to commend it in preference to tracheotomy. Occasionally, owing to gross œdema of the larynx obscuring the landmarks, or else owing to an unusual configuration of the pharynx, considerable difficulty may be experienced in inserting a tube into the larynx.

The employment of the laryngoscope suggested the introduction of the intubation tube into the glottis under visual guidance. A suitable introducer has been designed for this purpose. The ease and safety which attends this method of insertion of the tube into the larynx may perhaps be considered an advance on the O'Dwyer technique.

STATISTICAL EVIDENCE.

At least five years' experience of aspiration treatment will be required before satisfactory statistical evidence of the value of the method can be expected.

In the Table the results obtained from August 1st, 1930, to July 31st, 1931, are contrasted with those of eight preceding years.

That only 20·5 per cent. of patients suffering from diphtheritic laryngitis admitted to hospital during the year under review required operation, as compared with an average operation-rate of 45 per cent. for the preceding eight years, might be regarded, even allowing for the mild type of infection, as statistically significant. Clinical evidence confirms this view.

The slightly lower laryngeal fatality-rate merely reflects the unusually low death-rate from all forms of diphtheria during the period of the investigation. It is unfortunate that the employment of aspiration treatment should have coincided with such a mild phase of the disease.

Whilst a study of the available American statistics shows that treatment by aspiration has resulted in diminution of the number of laryngeal cases requiring intubation, there is no convincing evidence that the method has reduced the diphtheria fatality-rate.

Year	1922.	1923.	1924.	1925.	1926.	1927.	1928.	1929.	1930–31.
Total number of diphtheria patients admitted to hospital*	767	741	702	845	527	578	602	1135	*1014*
Fatality-rate per cent. for diphtheria cases*	6·6	8·3	9·1	7·9	6·6	6·9	4·3	4·2	*3·2*
Number of cases of laryngeal diphtheria	87	65	83	81	50	60	55	98	*78*
Number of cases of laryngeal diphtheria intubated or tracheotomied	39	39	40	41	30	25	15	32	*16*
Per cent. of laryngeal diphtheria cases undergoing operation	44·8	60·0	48·2	50·6	60·0	41·6	27·2	32·6	*20·5*
Laryngeal diphtheria deaths in which no operation performed†	2	2	4	5	2	3	4	4	*4*
Laryngeal diphtheria fatality-rate per cent.	26·4	29·2	24·1	24·7	24·0	23·3	14·5	13·3	*12·8*
Diphtheria fatality-rate per cent. excluding laryngeal cases	4·1	6·2	7·1	6·2	5·0	5·0	3·3	3·3	*2·3*

* Carriers and bacteriological diphtheria not included. † Cases moribund on admission to hospital.

CONCLUSIONS.

1. Where symptoms of croup are suspected to be due to diphtheritic infection the laryngoscope, supplemented by bacteriological examination of the larynx, affords the most accurate method of diagnosis.
2. In severe diphtheritic infection inspection of the larynx will indicate the best method of relieving the respiratory distress.
3. Aspiration is indicated when dyspnœa is due to extensive membrane formation. Where gross subglottic œdema is the cause of the respiratory difficulty, then operative measures are necessary.
4. Fewer cases of laryngeal diphtheria require operation if aspiration is judiciously employed.
5. Direct laryngoscopy permits of the introduction of an intubation tube by visual guidance, thus diminishing the risk of trauma associated with the indirect method of intubation.
6. Whilst as yet satisfactory statistical evidence is lacking, one only requires to witness the dramatic relief following suction in certain cases of severe laryngeal diphtheria to form the opinion that this method of treatment is worthy of serious consideration.

I should like to express my appreciation of the assistance afforded me in this investigation by Dr. A. L. K. Rankine, senior assistant medical officer to the hospital.

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SWANSEA HOSPITAL.—The report of the Swansea General and Eye Hospital for the year ended Dec. 31st, 1930, has just been issued. There were 287 in-patients and 33,857 out-patients, an increase of 5000 over the preceding year; each patient stayed an average of 21·25 days, and the average cost per occupied bed was £140 18s. There was a waiting-list of 739, and further accommodation will have to be provided. The ordinary income was £44,859, and ordinary expenditure £50,501.

CLINICAL AND LABORATORY NOTES

SOME OBSERVATIONS ON NEURASTHENIA AND SHELL-SHOCK.

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From 1926 to 1930 I was in medical charge of the London patients of the Ex-Services Welfare Society, a war charity which receives only cases of neurasthenia and so-called shell-shock attributable to war service, Dr. E. Mapother being consulting physician to the Society. During this time there passed through my hands 527 of these ex-servicemen, their periods of stay in the home averaging about three months. In addition I interviewed and examined a large number of applicants whom it was impossible to admit to the Society's various homes.

Coming as they did to me at least eight years after the armistice, they afforded an interesting opportunity of studying the persistence of post-war neuroses, and I was able to form certain conclusions as to the prolonged effects, sociological and physical, of war suffering upon the civilian soldier. At the very outset it was impossible not to be impressed by the fact that fully 80 per cent. of the cases that came under survey were unskilled men of the labourer type with no trade to their hands. It was rare indeed to have to deal with an artisan or craftsman—a fact that, as will be seen later, considerably influenced the treatment.

The post-war history of these cases showed but little variation. Returning from military service to some sort of occupation, the applicant tells the story of periodic breakdowns at his work. These were found to be referable to any or all of the following causes:

Inability to master a task, however simple.
Actual weakness and fatigue.
Inability to concentrate.
Ill-temper and quarrels with anybody and everybody, including the "boss."

Many of these men had no pension whatever. There was no wound to show, no loss of eye or limb, and to the ordinary observer they presented in some cases a picture of health. It was the mind that had been wounded, and only their families and intimate associates have the least idea of their sufferings. They live on the frontiers of fear, their days are a torture, and often through the night they endure again the horrors of war. It is not unusual to be called to such a man sitting trembling with ashen face on the side of his bed, refusing to sleep, since sleep brings no peace but lifts a curtain on the fearful drama of the past.

Clinically they usually presented this picture:

Tremors of hands, tongue, and eyelids.
Increased knee-jerk.
Clammy moist hands.
Tachycardia.

In reference to the last sign, I recall that we dealt at Mount Vernon Military Heart Hospital with a large number of tachycardias, which were labelled D.A.H. In the light of subsequent experience, I have formed the opinion that these cases were not D.A.H. at all. They were neurasthenia and shell-shock, although in some cases the "shell" was an irate sergeant-major in the home counties.

The mental attitude varied. There was the truculent type, from whom it was difficult to elicit any information at all and who seemed to be at war with the world. It is not surprising that there turned up from time to time among the patients a genuine honest-to-god paranoia. And of course there were not a few malingerers. Some of these had learned a few tricks at the famous Ministry nerve hospital at Orpington, a favourite one being "chucking a dummy"—i.e., fit. We used to call these "bluff-orpingtons." But chiefly it was the anxiety type that one encountered: fear of mankind, fear of traffic, fear of himself. And it was this type that proved most amenable to treatment.

I have no desire to quarrel with the psycho-analyst, but when a man comes to you broken in mind and fortune, it seems useless to question him for days, and then hope to cure him by pointing out that the cause of his trouble is something that happened on the Menin Road some years ago. The men that came to the Society were in every sense broken, mentally bankrupt and often without means of support. Usually there was a wife and family and some raging creditors in the background. The Society realised from the start that it was idle to attempt to cure a man while his wife and family were starving; so they adopted the whole bunch—man, family, and very often the creditors.

After a period of observation and building up, the man was sent down to an industrial training centre, where under sympathetic but firm tutelage he was taught, by very gradual stages, to become self-supporting. He had nothing to worry about. His wife and family received an allowance, and his creditors were pacified. If it was felt he was entitled to a pension the issue was opened with the Ministry, whose sympathetic coöperation with the Society's expert resulted in the granting of pensions running into many thousands of pounds.

By such means these war derelicts, their self-confidence restored, were enabled once again to face the battle of life as useful citizens.

CARCINOMA OF THE ŒSOPHAGUS

ASSOCIATED WITH CARCINOMA OF THE SIGMOID COLON; RUPTURE OF THE AORTA BY THE ŒSOPHAGEAL CANCER.

By Cyril J. Polson, M.D. Birm., M.R.C.P. Lond.,
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AND
Wm. McIntosh, M.B. Glasg.,
DEPUTY MEDICAL SUPERINTENDENT OF THE HOSPITAL.

The present case, as indicated by the above title, has two notable features.

The patient (29956), a male of 71, was admitted to St. James's Hospital on August 25th, 1931. He stated that he had had sciatica for six months and had been unable to swallow solid food for five months. It felt as if solids only reached the lower part of his neck and was then returned. He had always been able to swallow liquids and a week prior to admission he was once more able to swallow solids. Death occurred abruptly on August 28th from a violent hæmatemesis.

An *autopsy* was performed next day, 15 hours after death. The body was that of a wasted man who looked his age. The left pleural sac contained a quantity of clear yellow fluid which had collapsed the left lung. The right sac was obliterated by adhesions. At the level of the bifurcation of the trachea the œsophagus presented a

fusiform dilatation to which the arch and upper part of the descending aorta were firmly adherent. The œsophagus was opened in the mid-line posteriorly revealing an annular carcinoma which commenced 5 in. below the glottis and extended for 2¼ in. down the œsophagus. It was an ulcerated, fungating growth which encircled the gut and thickened its wall. A tongue-like mass of blood clot was attached to the left-hand wall and close to the attachment an aperture was detected. A probe was passed through it into the aorta, entering at a point which corresponded with the junction of the arch and the descending aorta. In this region the aortic intima, over a circular area 0·7 in. in diameter, had a purple colour and was slightly raised; an aperture, 1/32 in. wide, was seen in the centre of the patch. This was the aortic stoma of the abnormal passage.

The well-recognised though unusual lymphatic permeation of the œsophageal wall was present, with the formation of three such secondary deposits 2 in. above and 1 in. and 1¾ in. below the primary growth. The upper one was oval, slightly raised, and had diameters of 0·4 in. and 0·2 in. It was not ulcerated but had approached the lumen closely and presented as a whitish patch in the œsophageal wall. Its centre was depressed. Secondary deposits were also found in the lymphatic glands on the right of the trachea and in those related to the cardio-œsophageal junction.

The stomach contained recently clotted blood (20 oz.) forming a cast of the interior of the viscus. The sigmoid colon, at the level of the brim of the pelvis, was kinked and contracted. When it was opened, an annular cancer was found completely encircling the gut and extending for 1¼ in. in its long axis. A second growth lay 1 in. above. This was a flat oval cancer, 1½ in. by 1 in., with a raised, slightly rolled margin; the central four-fifths were depressed and ulcerated. The bowel above the annular cancer was hypertrophied and dilated; below it was also hypertrophied and bore several diverticula, ¾ in. by ½ in. in their diameters. A small benign polyp, ¼ in. long, was present two inches below the annular cancer.

The liver contained a single secondary growth, 1½ in. in diameter, which projected from the superior surface of the left lobe. It was nodular and umbilicated. The brain was not examined and the other organs presented no macroscopic abnormality.

Microscopical Examination.—The primary growth in the œsophagus was a non-keratinising squamous carcinoma and the secondary deposits in the œsophageal wall and lymphatic glands were of identical type. Lymphatic permeation of the œsophageal wall, as figured and described by L. Aschoff,[1] was well illustrated in the specimens. A rectangular portion of the wall of the sigmoid colon, including a portion of both tumours, was removed for microscopical study. Each growth was an intestinal adeno-carcinoma of the usual type. The intervening bowel, 0·8 in. long, contained no cancer; its muscular layer was hypertrophied. The secondary growth in the liver was identical with the primary growth in the colon.

The clinical picture was dominated by the signs and symptoms of œsophageal obstruction. At no time was there clinical evidence of a growth in the colon, unless it was the cause of the "sciatica." This is less surprising than would appear at first sight, for the patient had had scarcely any solid food for five months and therefore little residue in his intestine. Moreover, any suggestion of obstruction of the bowel would have been dismissed as simple constipation in view of the predominance of the œsophageal lesion. In the absence of a radiological examination (the patient was too ill) the diagnosis at the end was that of rupture of an aortic aneurysm.

The separate entity of the œsophageal and colon carcinomata was easy of proof, since the linings of these structures are of different types. It was also a simple matter to demonstrate the relation between the primary and secondary growths in the œsophagus, since lymphatic permeation of the wall was unmistakable. On the other hand, it was not possible to demonstrate a similar relationship between the two growths in the colon. Nevertheless, the view is taken that the annular growth was the primary and the oval one secondary to it.

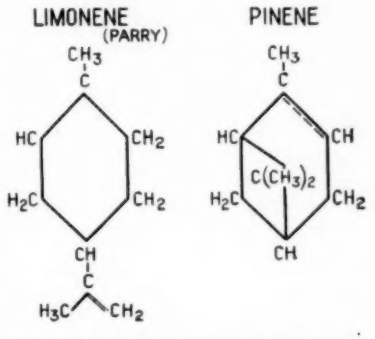
We are indebted to Dr. John Dick, medical superintendent of St. James's Hospital, for permission to utilise the records.

[1] Pathologische Anatomie, 6th ed., Jena, 1923, vol. ii., p. 705.

DERMATITIS FROM ORANGES AND LEMONS.

By Sibyl G. Horner (née Overton), M.B. Lond., D.P.H.,
H.M. Medical Inspector of Factories.

An inquiry undertaken in the marmalade season of this year revealed that a number of workers preparing oranges and lemons presented a condition of dermatitis—often of a disabling degree. Clinically, two types of reaction were noted—acid "holes" with or without a dermatitis. It has generally been concluded that the acidity of the juices of these fruits was responsible for both conditions, but the fact that the skin condition of workers at processes where the hands and arms became drenched with fruit juice was better than that of "peelers" gave food for thought. It was certainly among the "peelers" that a disabling dermatitis seemed most often to occur, and in this occupation there is practically no contact with the juice of the fruit. The skin, however, is predisposed to injury by trauma from knives and other implements and from frequent immersion in water. Any other predisposing factor, such as friction of the wrists and forearms—which is a factor varying with the individual—is of importance in the causation of dermatitis among "peelers." It seemed likely, however, that some substance in the peel of oranges and lemons was a more aggressive irritant than the citric acid of the fruit hearts.



The chemistry of the essential oil of the orange is of interest. Three essential oils are obtained from the orange tree—neroli oil from the flower, petit grain oil from the leaves and shoots, while the term "orange oil" is reserved for the oil extracted from the peel. Orange oil and lemon oil consist of over 90 per cent. dextro-limonene. Now limonene is a terpene—a hydrocarbon group whose irritant action on the skin is exampled in the turpentines. Moreover, pinene, believed by certain American investigators to be responsible for the irritant action of some turpentines on the skin, is not only very closely related to limonene but is also present in lemon oil, together with camphene, and octylene (a hydrocarbon differing from the terpenes). So nearly are lemon oil and turpentine related that the latter was at one time a common adulterant for lemon oil. Aldehydes are present in both orange and lemon oil, but the quantity of these in sweet oranges is greater than in the bitter variety.

It is suggested, then, that limonene might well be the cause of dermatitis in lemon and orange peelers. The rind of these fruits, particularly the bitter orange, contains a number of oil vessels which readily become ruptured on handling—a risk that is augmented by the practice of steaming the fruit preliminary to peeling. It was found that where the exposed skin was oiled before beginning work on peeling fruit, injury was very rarely sustained, even after

continuous work on this process extending over some two to three months. Although grease is not by any means a specific in preventing the irritant action of the turpentines on the skin, the effects of this group would certainly seem to be controlled by inunction methods. It is, of course, possible that the presence of oil on the skin prevents damage to the horn cells from immersion in water, and that these remaining healthy, the action of both citric acid and limonene are resisted. To give practical effect to this explanation of dermatitis among orange and lemon peelers, the Home Office official placard,[1] first published in 1919, has been revised. By this means advice on prevention is brought to the notice of employers and factory workers, the results of which will be awaited with interest in the coming season.

In conclusion, it may be stated that in support of the importance of the essential oil of oranges and lemons as a factor in the ætiology of dermatitis among marmalade workers, is an experiment made by Dr. W. J. O'Donovan of the London Hospital, who found that a marmalade worker who had contracted dermatitis at her work as a peeler, only reacted to an application of the outer surface of the fruit peel and not to any other part of the fruit.

[1] The Effects of Lemon- and Orange-Peeling on the Skin. F. 396. H.M. Stationery Office.

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE.

SECTION OF UROLOGY.

AT the meeting of this section on Oct. 22nd, with Mr. RALPH THOMPSON, the President, in the chair, a paper on

Electro-surgery of the Bladder Neck

with cinema films was read by Dr. CLYDE W. COLLINGS (New York). He said that certain types of bladder neck obstruction could be incised through the cysto-urethroscope by means of the cutting high-frequency current. The following were the indications for operation: (1) fibrous contracture of the bladder neck, or bars there; (2) an obstructing scar after prostatectomy; (3) a carcinomatous bar in prostatic carcinoma; (4) small median or small inter-urethral lobes. The main contra-indication was benign enlargement of the lateral lobes of the prostate. This was better relieved by prostatectomy. For this condition he had tried peri-urethral surgery along the lateral lobes, but so far the results obtained were unsatisfactory. Large lateral lobes bled readily, and he found it difficult to whittle away enough tissue to be of real benefit. The practice of some surgeons in America was to bite out pieces of lateral lobe, and they claimed good results from this.

ADVANTAGES.

Dr. Collings enumerated the advantages of electro-surgery in this region as follows: (1) it resulted in the efficient excision of certain obstructions at the bladder neck by the trans-urethral method; (2) it was under the direct observation of the operator throughout; (3) the resultant primary bleeding was unimportant, while the late secondary bleeding was nil; (4) the patient was thereby relieved of a grave lesion by a minor procedure, and without endangering his life. He used the auto-cysto-urethroscope because it provided continuous irrigation, water flowing into the operation field, and blood and particles were washed away from the operation area; the field of view was a large one. He employed a spark-gap machine, similar in type to that for fulgurating bladder tumours. The machine produced a cutting rather than a coagulating current. It had been ascertained that the heat penetrated and destroyed tissue from 1 to 2 mm. beyond the actual cut. The former trans-urethral operation by cautery produced considerable bleeding when the thick slough separated a week or two later.

Since 1923 he had used this cutting current for these conditions in 700 cases, in his clinic and privately, and had not had an operative death. In 80 consecutive cases the youngest patient was 28 years of age, a case of a congenital bar, and the oldest was 92; the average was 54 years. The chief symptoms in these patients were: Frequency (50 cases), burning micturition (27), inability to void urine (9). Nine of the patients complained of pain across the back, nine of pain in the perineum. In a number of cases a previous operation of some kind had been carried out. Symptoms had been present before the operation for a period varying between three years and three weeks. The prostate was described as normal in size and firm in consistency in 25 cases, as slightly enlarged in 38, moderately enlarged in 10, and carcinomatous in four, and had been said to have been previously removed in three.

TECHNIQUE AND AFTER-CARE.

As the instrument was passed through the bladder neck, it was necessary to depress the ocular end in order to negotiate the fibrous bar. In patients who had had the symptoms a number of years it was often seen that the bladder was trabeculated, with a tilting of the trigone. He employed caudal anæsthesia, injecting 15 c.cm. of 1 per cent. novocain into the sacrum. At times, however, he had used spinal analgesia or gas. The electrode-knife was first engaged at the bladder neck in the 6 o'clock position. When the current was turned on there was a violent bubbling; the protein molecules were exploded by the high-frequency oscillations. The urethra and the electroscope were pulled slowly back until the verumontanum was seen; then the instrument was pushed forward and through the bladder neck; working slowly back and forth, and so causing the groove to be gradually widened and deepened. The operator should continue to cut until the last obstructing fibrous band had been sawn into, and until he was satisfied there was a wide-open bladder neck. At first Dr. Collings said he had been too timid; he did not cut sufficiently deeply; but a second operation brought about a cure. He had never cut into the rectum, which was about 1·5 cm. distant. The procedure was repeated on the opposite side until the intervening tissue had been whittled away piece by piece. The two lateral incisions, at 5 and 7 o'clock respectively, widened the channel; but the incision which really brought relief was that made in the position of 6 o'clock. The procedure was efficiently performed, moving the knife slowly, in about 20 minutes.

The indwelling catheter was tied into the urethra for 12 hours after the operation; if the urine was still pink the catheter was left in until it cleared.

Where there was considerable residual urine and decreased function, it was retained longer. Patients could usually void urine as soon as the catheter was removed; but occasionally catheterisation might be necessary for a day or two thereafter. Efforts should be made to avoid this, for it might start bleeding. Two weeks after operation a catheter was passed, the quantity of residual urine was observed, and the bladder was irrigated with a 1 in 5000 solution of acriflavine; this was repeated weekly, the decrease in the residual urine being noted. Not until seven or eight weeks had elapsed was the full result of the operation seen, probably because it took that time for the post-operative œdema at the bladder neck to clear up, and for the tone of the bladder to be re-established. He had not had any hæmorrhage at the time of the operation in 52 of the 80 cases specially reported; in 28 cases blood tinged the urine, and small clots were passed for about a week. Seldom had it been necessary to use an indwelling catheter because of bleeding, and he had never had to perform suprapubic cystotomy for hæmorrhage.

RESULTS.

Of the 50 patients previously referred to as complaining of frequency before the operation, 34 were entirely relieved by the operation; 16 were afterwards normal by day, but had to rise to pass water once or twice during the night; 11 said the feeling of obstruction they had had disappeared. In 64 of the patients there was no residual urine after the operation, in three it amounted to a few c.cm., in three it was 15 c.cm., in two it was 30 c.cm., and in one it was 45 c.cm. Three of the cases were not followed up. Seventy per cent. of the patients were discharged from hospital 24 hours after the operation. There were no immediate post-operative deaths; but six patients died at intervals of three weeks to three years from operation owing to some intercurrent disease; the man who died at three weeks was a carcinomatous patient who developed pneumonia after the operation. The deaths of the others were from typhoid fever, cerebral hæmorrhage, cardiac failure, &c.

In conclusion, Dr. Collings emphasised the importance, before commencing the operation, of arriving at a clear-cut cystoscopic diagnosis.

DISCUSSION.

Mr. J. ALBAN ANDREWS said he had not had experience of this method of operating, but he felt that in most cases of prostatic obstruction where there was residual urine the condition of the kidneys was of prime importance, and so the retention of a suprapubic tube in position for ten days was an aid in treatment. In most of the cases narrated there appeared to have been but little residual urine—i.e., about 3 oz. Even, therefore, from the standpoint of relieving symptoms, it seemed to be a valuable method. Sometimes when a patient was too ill to stand a suprapubic prostatectomy he had tried to burn away a papilloma by coagulation methods, using the high-frequency current.

Mr. KENNETH WALKER said he had been much interested in the electrical treatment of bladder neck obstructions for ten years, and his cases so dealt with numbered about 300. Long ago he formed the deliberate conclusion that this or a similar method of dealing with these cases was invaluable in urology; if he were subject to the condition he would greatly prefer it to the knife operation. The method had been brought into disrepute, but for only one reason: lack of discrimination in the selection of cases. In suitable cases the procedure was an excellent one. Confessedly he had used coagulation methods for general enlargement of prostate, but only when prostatectomy was out of the question; by that means he had enabled men to carry on in comfort for two years, a repetition being carried out at the end of that time. Sometimes by means of an electrode one could shave off a prominent part of a lateral lobe, though he did not choose the method for lateral lobe cases. He asked what steps Dr. Collings took to combat sepsis when it arose.

Mr. F. M. LOUGHNANE agreed about the value of diathermy in prostate cases; it quite destroyed an enlargement of one lateral lobe. The amount of destruction varied with the time and with the size of the electrodes used. When much tissue had to be destroyed he favoured two sittings. One objection to diathermy treatment of the prostate was that stricture sometimes followed. By this method, if one was content with a little destruction at a time, the patient need not be absent from duty more than two or three days. Sometimes he had taken six stages.

Mr. MELLIN said that recently he had been using the radio-arc, and with this it was possible to remove tissue enlargements more rapidly than by Dr. Collings's method.

Mr. JOHN EVERIDGE remarked that there could be no doubt this method of treating an obstructing middle lobe of the prostate was of great value. He had devised a long narrow electrode having a narrow point, like a spearhead, and this was speared into the prostatic projection, working from below upwards, instead of in the reverse direction. His results from this had been very satisfactory. He greatly favoured suprapubic drainage in some of the bad cases who had had a large quantity of residual urine, as a preliminary measure; it lessened the reaction and the chances of hæmorrhage. Some of his cases had hæmorrhage, not immediately but some weeks afterwards. Another advantage was affording facilities for irrigation.

Mr. H. P. WINSBURY-WHITE said one of his chief difficulties had been in making up his mind definitely as to what kind of cases were most suitably treated in this way. Some types his experience had taught him to treat cautiously. One was the case which had considerable vesical infection. When there was residual urine he always tied in a catheter as long as necessary, possibly for ten days. A type of patient who had interested him considerably was the one with prostatic symptoms but no residual urine; that kind did not benefit from electrical coagulation. The presence or absence of residual urine he regarded as an important guide as to whether this method should be employed or not. When the sound met with an obstruction in the prostatic urethra, the condition was nearly always inflammatory in origin, provided the cause was not stone nor malignant disease, and accompanying it was much vesical sepsis. Such a case responded well to dilatation. The kind of case specially suitable for this method was the fibrous prostate. Recently he had been using Curwen's electro-diathermy punch, and had found it a most excellent instrument.

Mr. SYDNEY MACDONALD asked about Dr. Collings's method of dealing with post-prostatic obstruction cases, in which he could not pass the instrument. The cause seemed to be contraction, which pulled down a cuff of mucous membrane, so forming a valve.

Dr. COLLINGS, in reply, said he had had one or two patients on whom he could not pass the instrument,

and found that with continuous irrigation he could distend the posterior urethra enough to cut from there through the bladder neck.

MEDICAL SOCIETY OF LONDON.

AT a meeting of this society on Oct. 26th, with Mr. HERBERT TILLEY, the President, in the chair, a discussion on the problems presented by recent experimental and clinical observations on

Blood Transfusion

was opened by Prof. ALEXANDER FLEMING. After briefly outlining the history of the subject Prof. Fleming discussed the new nomenclature which has been applied to the blood groups, and pointed out fallacies which may arise in determining the group of a patient. On the question of auto-agglutination, he said that although such a process might occur at room temperature it could easily be eliminated by working at blood-heat. Much work had been done on sub-groups, and Landsteiner had shown that many such groups existed, although their importance could not yet be estimated. The age factor was of great importance when dealing with transfusion in infants, since it had been determined that the group was fixed in only 16 per cent. of cases between the ages of 1 and 3 months. Finally, after referring to the three fundamental methods of transfusion—i.e., whole blood, citrated blood, and defibrinated blood—and their relative merits, Prof. Fleming concluded by discussing immuno-transfusion, and by mentioning two phenomena which he said might have a practical bearing on transfusion: (1) that the bactericidal power of the blood may be increased by injecting 2·5 c.cm. of nuclein into the donor before bleeding; (2) that if hypertonic saline (10 per cent.) is injected into the donor the bactericidal properties are much raised.

Dr. H. LETHEBY TIDY said that blood transfusion was indicated in various anæmias when the hæmoglobin content of the blood had fallen as low as 30 per cent. This must be taken only as a relative figure, but would act as a guide when in doubt. It was often stated that the coagulation time in anæmia was increased and that transfusion reduced it; such a statement had no experimental support and was untrue. It was his experience that the effect of transfusion on the blood pressure was to cause a rise as far as 120–130 mm. Hg, but that it was quite impossible to raise it above that level; the argument that a clot might be disturbed and cause recurrence of hæmorrhage after transfusion was thus probably erroneous. At St. Thomas's Hospital it was generally held that the increase of resistance to infection after transfusion was negligible. In conclusion, Dr. Tidy mentioned some of the conditions in which blood transfusion was of special service as a therapeutic measure. (1) In hæmophilia, although the effect was transient, only lasting three to five days, its effect was dramatic if given at the right moment. There was no need to perform blood grouping in hæmophilia. (2) In malæna neonatorum an intramuscular injection was most effective. (3) In jaundice it was believed that the coagulation time was increased; this was not so, except as a rare terminal event, but it was known that the clot in these cases was very soft, and similar to that found in purpura. (4) In primary purpura, splenectomy, although the ideal treatment, was often impossible, and transfusion proved to be the correct treatment. (5) In certain blood diseases, especially aplastic anæmia and certain chronic anæmias, transfusion was of great service, but not in leukæmia or pernicious anæmia.

Mr. GEOFFREY KEYNES objected to the distinction between "whole blood" and "citrated blood," since, he said, the amount of sodium citrate required (1 g. per 450 c.cm. blood) was destroyed within ten minutes of its entrance into the body, and was therefore unlikely to cause the many evil effects with which it was credited. Mr. Keynes declared himself to be "an unrepentant citrationist." The most satisfactory apparatus was that which was the easiest to understand, and he considered that French's needle was still the most useful for withdrawing blood from the donor, especially as its introduction could be further simplified by securing the anterior wall of the vein, just proximal to the point of introduction, with a needle. Special methods were justified in transfusing infants, but here again simplicity should be the keynote. The chief development of recent years was the great increase in the extent to which transfusion was used, and this was reflected by the statistics of the London Blood Transfusion Service, which was instituted nine years ago. The figures showed a great rise in the number of hospitals using the service, and in the number of different conditions for which transfusion was used. It seemed that certain clinicians still used transfusion in pernicious anæmia, although it had been given up by most authorities. A problem still to be solved was, what was the effect on the donors after repeated bleeding, and how often could they be bled? The existing practice of some institutions of always calling upon a group O donor instead of determining the exact groups of the patient was very unsatisfactory, because it entailed a shortage of such donors.

In the discussion which followed, Dr. F. PARKES WEBER demonstrated a special apparatus (athrombit) for the use of whole blood by the direct method, and supported its adoption by the statement that there had been no rigors following its use in 20 cases. Mr. JULIAN TAYLOR spoke of the distinction between the effect of transfusion in shock and in hæmorrhage, and Dr. B. E. SCHLESINGER demonstrated the use of transfusion in pneumococcal septicæmia. Other speakers emphasised the importance of transfusion in promoting metabolism in infants, and in toxæmias—especially the 48-hour toxæmia of burns, and the acute intestinal intoxication of infants.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—On Monday next a course in proctology begins at the Gordon Hospital (one week with afternoon clinics), a course in medicine, surgery, and gynæcology at the Royal Waterloo Hospital (three weeks, with morning and afternoon work), and a course in neurology at the West End Hospital for Nervous Diseases (four weeks, daily at 5 P.M.). Special courses to the end of the year are as follows: ophthalmology at the Royal Westminster Ophthalmic Hospital each afternoon from Nov. 9th to 28th; diseases of the chest at the City of London Hospital, Victoria Park, morning and afternoon clinics from Nov. 16th to 28th; venereal diseases at the London Lock Hospital, every afternoon and evening from Nov. 16th to Dec. 12th; diseases of infants at the Infants Hospital, every afternoon from Nov. 30th to Dec. 12th; proctology at St. Mark's Hospital all day from Nov. 23rd to 28th; and dermatology at the Blackfriars Skin Hospital, afternoons from Nov. 30th to Dec. 12th. Lectures and demonstrations intended primarily for candidates for the M.R.C.P. are given on various evenings chiefly at 11, Chandos-street, Cavendish-square. Copies of all syllabuses may be had from the secretary of the Fellowship, at 1, Wimpole-street, London, W.1.

REVIEWS AND NOTICES OF BOOKS

Occupation and Health.

An Encyclopædia of Hygiene, Pathology, and Social Welfare. Vol. I. Geneva: International Labour Office. 1930. Two vols. £3 3*s*.

THE English version of the first volume of this ambitious work has only appeared this autumn, although it is dated 1930. It is an encyclopædia of industrial hygiene, the articles of which are contributed by many experts of international fame. During the years in which it has been in preparation the articles have been issued from time to time in separate brochures; now they are arranged in alphabetical order and this first volume extends from A to H inclusive. The scope of the compilation includes the work, the worker, and the environment; sometimes the approach is by way of an industry, such as the chemical trade or the cotton industry. Sometimes by way of some industrial poison, such as carbon bisulphide or explosives; sometimes by way of subject, such as first-aid or food. The articles are for the most part well illustrated. A fair level of excellence is maintained throughout; although, as is inevitable with so many contributors, the standard varies, and certain of the articles bear signs of being compilations from the writings of others rather than the results of personal experience. The task of preparing the English translation of articles written in German and French has been entrusted to Sir T. M. Legge and Prof. E. L. Collis, and they have accomplished it so well that the reader seldom detects the stilted style which often mark translations of technical articles. No member of our profession can ignore the effect of occupation on health. Both consultant and practitioner are being constantly faced with the end-results of occupations, and, as Ramazzini wrote, "The duty of a doctor attending the common people is to inquire what trades they practise." When the trade has been ascertained, the hazards associated therewith must be known. Articles which deserve special mention are those by Prof. C. E. A. Winslow dealing with atmospheric conditions and ventilation; by the late Dr. W. T. Dearden on the cotton industry; and by Dr. Alice Hamilton dealing with the felt hat industry. The glass industry is delightfully described and illustrated by D. Glibert; while the article on the blood in relation to industrial poisons by Prof. P. Schmidt is both exhaustive and authoritative. This volume contains, in all, 1000 pages of closely written matter.

Diseases of Women.

Third edition. By THOMAS GEORGE STEVENS, M.D., F.R.C.S. Eng., M.R.C.P. Lond., Obstetric Surgeon, St. Mary's Hospital; Surgeon to Hospital for Women, Soho-square. London: University of London Press. 1931. Pp. 444. 20*s*.

IN his preface to the first edition of this book, which appeared in 1902, Mr. Stevens said that as a result of ten years' experience in teaching gynæcology to students he had learnt the lesson that gynæcology "must be presented on a pathological basis, in the same manner as medicine and surgery and that when presented in this manner the theoretical side at least of the diseases of women is no harder to acquire than that of the sister sciences." We believe this principle is sound and that the essential element in successful teaching is to impress on the student that the general principles of pathology are as applicable to gynæcology as they are to medicine or surgery, that clinical knowledge can only be built securely on a sound pathological basis, and that when this is acquired it is no longer necessary to memorise, parrot like, the signs and symptoms of the various gynæcological diseases. Since this principle pervades Mr. Stevens's book it has taken its place as one of the best small text-books on gynæcology for students.

In this new edition the text has been brought up to date, and in such matters as the physiology of menstruation, the ovarian internal secretion, and endometrioma of the pelvis the information provided is all that could be desired in a small text-book and certainly sufficient for the final qualifying examinations. The description of the pathology of chronic cervicitis is also admirable, but it is to be regretted that the old "tinkering" treatment by douches and the application of picric acid should still be recommended—somewhat hopelessly it is true—and that no mention should be made of the modern effective and easily applied treatment by cauterisation. Cases of chronic gonorrhœal cervicitis which have been treated weekly for years by almost every kind of local application and remain gonococcus-positive are sometimes cleared up by three or four applications of diathermy. It is doubtful whether syphilis is really a "cause of repeated abortion." It is unfortunate that Mr. Stevens should perpetuate the error that the most frequent variety of cancer of the cervix is the squamous epithelioma. By far the most common variety is columnar cancer; squamous epithelioma is really rare. This error seems to pervade all gynæcological text-books; indeed, it might be unsafe in a students' text-book to state the proportions correctly. We are glad to note that the author takes a sane view regarding supravaginal versus total hysterectomy for fibroids of the uterus, recommending the former as a routine proceeding and reserving total hysterectomy for special cases. More guidance might have been given as to the type of case in which myomectomy should be preferred to hysterectomy.

Mr. Stevens is to be congratulated on a book in which the student will find all he wants for his final examinations, and which will afterwards be a reliable guide in his practice.

Cutaneous X Ray and Radium Therapy.

By HENRY H. HAZEN, M.D., Professor of Dermatology, Georgetown University. London: Henry Kimpton. 1931. Pp. 166. 12*s*. 6*d*.

UNDER the subheading, Training of the Operator, the author lays down certain precepts for cutaneous X ray and radium therapy, to which every honest physician will subscribe. If they were consistently and conscientiously observed, the very considerable suffering and disfigurement resulting from radiodermatitis at the present day would be entirely eliminated. Every person who uses these methods should have a good knowledge of skin diseases, or work under the immediate supervision of a dermatologist, for a correct diagnosis is essential to success, and the pathology of a disease must be understood before the right dosage can be applied. A radiologist may be experienced in radiological technique, and have the most elaborate and modern apparatus at his command, but the very nature of his calling will tend to prejudice his choice of a remedy. "Many a case

of acne will recover more quickly under suitable hygiene and diet than under X ray treatment," says Dr. Hazen. He himself is a dermatologist first and foremost, and is therefore qualified to speak with authority on the radiotherapy of skin diseases. He makes no extravagant claims either for the indications to treatment he follows or for the results he has secured. His language throughout is simple, and except for the somewhat mathematical section on the American method of dose estimation, will be readily comprehended by every practitioner with some knowledge of cutaneous disease. It is curious that he makes no mention of the Philips' X ray tube, which, while it is based on the same technical principles as the Coolidge, is armoured, and thereby ensures reasonable safety to the operator, and renders obsolete all the cumbersome paraphernalia of lead sheeting and rubber aprons, provided that the actual line of emanation is avoided. Superficial X ray therapy at least has been robbed of its danger by this simple invention.

Prof. Hazen's little book can be read from cover to cover without effort, and will amply repay its purchase by those who intend to treat skin diseases by X ray or radium therapy.

Études neurologiques.

Fourth Series. By GEORGES GUILLAIN and TH. ALAJOUANINE. Paris: Masson et Cie. 1931. Pp. 358. Fr.65.

THE fourth volume in the series of studies written by Prof. G. Guillain, this time in collaboration, contains as much of neurological interest as those which have preceded it. The method adopted, that of clinico-pathological correlation, seems admirably suited to the French genius, and its exposition in these pages leaves nothing to be desired. Prof. Guillain does not follow it slavishly, and from a physiological and experimental standpoint he seeks to amplify, in a number of his papers, the data derived from clinical observation. The subjects selected range widely over the neurological field, and the author has the art of making each readable and informative, so that the purpose of the communication emerges clearly in the reader's mind. We have invariably found Prof. Guillain's work concise, stimulating, and provocative, and we trust he will long continue to give the neurologist the fruits of his clinical experience.

Die Chirurgie des vegetativen Nervensystems.

By ERICH HESSE, Chief Assistant of Surgery, the Nervenkrankenhaus, Leningrad. Moscow: State Publication. Pp. 475.

THIS book consists largely of a comprehensive review of literature on the surgery of the sympathetic nervous system. The effects of division and stimulation of various parts of the sympathetic chain are fully described, and the author has collected the published cases of injuries, inflammations, and tumours of the sympathetic. Cervical sympathectomy, it appears, has been performed for over 30 different diseases, ranging from angina pectoris to glaucoma and otosclerosis. The claims of those who introduced the operation for each of these diseases are recounted with an impartiality which is perhaps excessive, especially as Dr. Hesse appears to have had considerable personal experience in performing sympathectomies. The sections on thoracic and lumbar sympathectomies are not quite so complete, and no reference is made to the recent studies of J. R. Learmonth on the innervation of the bladder, or to the work of G. I. Swetlow, J. C. White, and others on alcohol injection of the thoracic ganglia for relief of angina pectoris. A concluding chapter on the parasympathetic nervous system deals exhaustively with injuries, tumours, inflammatory lesions, and operative surgery of the vagus. The critical spirit desirable in a review of this sort is at times noticeably absent, but good indexes and bibliographies are supplied and the book will prove useful to those who have occasion to study the literature of the surgery of the sympathetic nervous system.

Clinical Interpretation of Blood Examinations.

By ROBERT A. KILDUFFE, M.D., F.A.S.C.P., Director of the Laboratories of the Atlantic City Hospital; City Bacteriologist, Atlantic City. London: Henry Kimpton. 1931. Pp. 629. 30s.

IN one respect this book is a portent; it takes cognisance of the fact that the clinical pathology of the blood is now concerned with other things as well as the formed elements of that fluid. It is probably unique among works of its kind in that it contains no picture of a blood-cell either red or white; the beautiful coloured plates usual in work on hæmatology showing the alleged appearances of the red and white cells in their polysyllabic variations are lacking. The author deserves congratulation on his strength of mind in having dared so far to depart from hallowed tradition. The physiology and pathology of the blood has now passed beyond the ideographic stage; given an elementary grasp of general principles it is possible to understand the subject without pictorial representation. This work constitutes one of the best compendiums of the present state of our knowledge in regard to the blood we have seen in any language. The author certainly shows a predilection in favour of American work and in some places (as for instance in the description of a number of procedures for the diagnosis of pregnancy from the blood which the Zondek-Aschheim test has made obsolete) he has used his space badly, but the net result is a most valuable work. Dr. Kilduffe has included the results of the monumental labours of Osgood, Haden, and other American workers on the normal blood picture; these may in course of time lead to a revision of the opinion still widely held that 5,000,000 represents the "normal" count for the red cells of all members of the human race.

The present state of knowledge about the blood groups is well reviewed and we rejoice to see emphasised straitly and without qualification, that no matter what the group of donor and recipient may be, nothing but direct matching can be regarded as conclusive test of compatibility where blood transfusion is contemplated. The various procedures based upon the old Arneth count are admirably reviewed, and attention is drawn to the simple method of Roberts, described some four years ago but too little known in this country. In speaking of the Wassermann reaction, Dr. Kilduffe makes pronouncements applicable not only to this but to all clinical laboratory procedures. One is that the clinician will do well to look upon the serologist in the light of a consultant and to select him not only for his expertness in manipulation, but also for his skill and ability in interpreting the clinico-pathological manifestations of disease. The second is that the clinician should have at least a working knowledge not only of the methods by which the test has been performed, but also by whom they have been applied.

THE BRITISH COLLEGE OF OBSTETRICIANS AND GYNÆCOLOGISTS.

THE British College of Obstetricians and Gynæcologists held its inaugural ceremonies in Grosvenor House, Park-lane, on Friday, Oct. 23rd. Before the dinner, in an adjoining hall, the President, Prof. W. Blair Bell, conferred Honorary Fellowships on Baron Riddell, of Walton Heath, Prof. Paul Bar, of Paris, Prof. Elis Essen-Möller, of Lund, and in absentia, on Prof. J. Whitridge Williams, of Baltimore. The distinguished foreigners he welcomed in a few words of their own tongues, and to Lord Riddell he made a warm acknowledgment for great generosity to the College.

The newly elected Fellows were then welcomed, and the Members were presented by Prof. Fletcher Shaw and admitted by the President, who recited to them the following Declaration: "I solemnly affirm that I will at all times maintain the well-being and dignity of the College, faithfully obeying in the spirit as well as in the letter the Articles and Regulations, and submitting myself to the lawful authority of the Council. Furthermore, I pledge myself in the practice of the art of Obstetrics and Gynæcology ever to have regard to the honour of the College, and to the welfare of the State."

The French Ambassador said that the British College had made a thoroughly happy choice in selecting Prof. Bar, who had studied in London 55 years ago, to represent French obstetrics, and hoped that the scientific bonds between the two countries forged by Pasteur and Lister, would be further strengthened by the ceremony which had afforded him so much pleasure to witness. The Swedish Minister complimented the President on his command of Swedish, and expressed his great satisfaction that his fellow-countryman, so highly esteemed in Sweden, had been honoured by the College.

A reception was held immediately following the ceremony, and preceding the first annual dinner. Prof. Blair Bell presided at the dinner and was supported by, among others, the French Ambassador, the American Ambassador, the Swedish Minister, the Dean of Canterbury, the Presidents of the Royal Society of Medicine, the Medical Society, and the Harveian Society, the Chairman of the Council of the British Medical Association, and the Master of the Apothecaries' Society.

After the loyal toasts Sir Thomas Horder proposed The College, premising that the duty had fallen to the hands of one who believed in the reasonableness of its institution and who had faith in its future. He said: "I have a sincere belief in the desirability of such a College as this, and though working in another department of medicine, I share in its aims and aspirations. I believe that it is in the interest of obstetrics and gynæcology that the College has been formed and find it strange on reflection that it was not formed long ago. The problems of your branch of medicine are particular and of great significance, both to the individual and to the State. In the view of many of us these problems can be dealt with much more effectively through the medium of a special body of men and women whose daily work brings them in contact with them than by a mixed body of physicians and surgeons, whose main interests may lie in other directions. I have heard it objected that if obstetrics are thus segregated from general medicine, then we ought to segregate also other special branches such as ophthalmology, laryngology, and dermatology, but this objection has never appealed to me, for I conceive the study of obstetrics to be more fundamental. Obstetrics have to do with the entry into the world of a new and individual life, with all the precariousness attaching to the first few days of existence. It has to do with all those accidents—physiological, chemical, anatomical, and infective—that may befall the expectant, the actual, and the recent mother. The more limited specialties are not in the least degree comparable and comparison is to construct a false analogy. The cleavage in this case is a natural, not an artificial one. And, in all our minds, have not medicine, surgery, and obstetrics constituted the tripod of our art and science? Is it only a dream that some day in this country we shall boast an Academy of Medicine, of which these are the three pillars? Or has the dream not come a little nearer by the very fact of this College coming into existence?"

The speaker then referred to the difficulty of some of the negotiations through which the College had got itself born, but offered no sympathy to the body "who being experts in difficult labour would not expect it. I suppose you all pulled together and so achieved your object." Looking at the development of the College, which had already materialised, he pointed out that the Royal College of Physicians of London had asked the Council of the new body to nominate a panel of names for the examinerships in obstetrics at the Conjoint Board, which seemed to imply that the College of Obstetricians and Gynæcologists would become responsible for the conduct of this part of the tests for the Conjoint Diploma; and he suggested, as a desirable extension of responsibilities, that the College should institute a higher diploma comparable to those of the other Royal Colleges. He congratulated the College on having already opened relations with the Ministry of Health by submission, in answer to specific request, of its views on maternal mortality, and upon the use of anæsthetics in confinements. In reference to this promotion of external interests Sir Thomas referred to the recent formation by the President of the Royal College of Physicians of London of a small committee for the express purpose of keeping that College in touch with external affairs. Such movements he considered to be most valuable as a preventive of splendid isolation. Sir Thomas concluded by a tribute to the steady toil on the one hand and the tactful forbearance on the other which the inception of the College had demanded of those who had been chiefly responsible for it. He would not, he said, give their names, but he would describe them as worthy successors to the giants who have gone before them, such as Matthews Duncan, Braxton Hicks, Galabin, Herman, and Champneys.

The President said that he would reply in English, despite a Scottish and Irish ancestry and a predilection for French and Swedish. He thanked Sir Thomas Horder for his kind words, and said that in hearing them, and knowing their sincerity, he felt that he and those associated with him were being transported into the future of their dreams. He then explained the significance of the coat of arms. The shield was divided into two halves, the one azure and the other sable, to typify day and night, during which times their labours were equally divided, while in the centre was the natal star of Bethlehem. The crest above portrayed the setting sun, symbolic of rest after labour, while the crescent moon represented the borrowed light by which so much of their work

was accomplished. He proceeded to say that the Royal Colleges had stolen a short march on them in point of time. Henry VIII., oblivious of the debts he owed to gynæcology, had conferred a charter on the Royal College of Physicians of London, while the Royal College of Surgeons of England had only by a close shave emerged from the thraldom of barber-surgery in 1745, receiving its Charter in 1800; it had not obtained responsibility for the conduct of examinations with its sister College until 1876. Between 3000 and 4000 years ago, in Sumerian times, midwifery was a segregated and important subject, whereas the other branches of medicine hardly existed. In a few thousand years it would be impossible to say which of the Colleges was the most ancient, whereas in 100,000 years, if the human race still existed, the other Colleges might not be required. He hazarded the opinion that before 1945 the College, the child of Prof. Fletcher Shaw's imagination, would be intimately associated with the Royal Colleges to their mutual benefit, though to-day men were much more concerned in not dying than in being born. "As President," he said, "I take a particular delight in expressing the debt of gratitude the Fellows and Members owe to our honorary secretary, Prof. Fletcher Shaw. It was he who first conceived, and suggested to me seven years ago, that the time was ripe for the foundation of a College of Obstetricians and Gynæcologists, and I can truly say, for I have been in the position to judge, having worked with him ever since, that he has never spared himself in any way to ensure a normal delivery and healthy neonatal existence for our College. No tribute of mine can over-estimate the value of his services. Mr. Comyns Berkeley, our first treasurer, and Mr. Eardley Holland, who succeeded him, have likewise devoted their energies and financial abilities to the best interests of the College. There are very many others whom I should like to name if there were time, whose service on the Council and in other ways—even to the extent of occasionally subordinating their own views—have helped the College to reach its present important position." The aims of the College were to improve the status of obstetrics and gynæcology and the education of the practitioner of medicine in these subjects. He was convinced that the attainment of these aims would benefit the State, and could not be achieved apart from the British College of Obstetricians and Gynæcologists. In conclusion, the President expressed the hope that the goodwill and fellowship which inspired the scientists of all nations and which had been so conspicuously typified by the evening's ceremony, might permeate their countries and usher in an era of prosperity and peace.

Prof. R. W. Johnstone then proposed the toast of the Guests. After a tribute to the women who had contributed largely to the evening's enjoyment, he pointed out that the aim of this, the youngest College, was to live in healthy symbiosis with its elder sisters. He rejoiced to see present the Ambassadors of France and America, the Minister for Sweden, Lord Dawson of Penn, although not in his official capacity, Prof. Paul Bar, Prof. Essen-Möller, the Master of the Apothecaries Society, the President of the Harveian Society—a society which commemorated Harvey a distinguished obstetrician—Dr. Eden in his dual capacity—host as member of the Council of the College and guest as President of the Royal Society of Medicine, and guest, Vice-Chancellor Hetherington, titular head of Liverpool University and therefore in some measure responsible for their President. He felt that it would not be invidious if he welcomed Lord Riddell with particular warmth. A man of many parts, a newspaper proprietor with almost a judicial mind, who had served his country brilliantly in many capacities, he had by his advice, advocacy, and extreme generosity given invaluable help to the College. On this, the earliest opportunity, they had elected him to be the first Honorary Fellow and were delighted to honour him and have him in their midst.

Lord Riddell, declaring that he was astonished to find that he could still blush, said that his interest in obstetrics had two reasons—it was a branch of medicine that directly affected every member of the State, for no one could avoid being born, and secondly, that unlike diseases the mere reading about which made him fear he had become infected, obstetrics was a subject he could contemplate without morbid fears. He found that the ignorance on the subject amongst the laity was appalling, and he was informed, and was willing to believe, that the good old British method of muddling through was inexpedient so far as midwifery was concerned. Lord Riddell concluded by promising to do anything that lay in his power to promote the interests of the College.

Vice-Chancellor Hetherington said that Liverpool was proud of the President and regretted that he had retired from the active staff of the University at such an early age. He was sure that Liverpool would welcome the formation of the College.

So ended a particularly pleasant evening and no person present could fail to appreciate that he had witnessed an historic event, nor fail to realise that the presence of the leaders in obstetrics and gynæcology from the Provinces, Scotland, and Ireland was a guarantee that the British College of Obstetricians and Gynæcologists, while it may have no traditions, will, *super ardua*, succeed in carrying out a tradition worthy of the Empire and of the fundamentally important subjects whose purpose it is to serve.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED OCT. 17TH, 1931.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 41 (last week 34); scarlet fever, 1843; diphtheria, 950; enteric fever, 46; pneumonia, 661; puerperal fever, 44; puerperal pyrexia, 94; cerebro-spinal fever, 26; acute poliomyelitis, 14; acute polio-encephalitis, 3; encephalitis lethargica, 8; dysentery, 12; ophthalmia neonatorum, 81. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on Oct. 20th–21st was as follows:—Small-pox, 69 under treatment, 3 under observation (last week 75 and 4 respectively); scarlet fever, 1628; diphtheria, 1477; enteric fever, 15; measles, 142; whooping-cough, 349; puerperal fever, 11 (plus 8 babies); encephalitis lethargica, 221; poliomyelitis, 5; "other diseases," 170. At St. Margaret's Hospital there were 13 babies (plus 5 mothers) with ophthalmia neonatorum.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox or enteric fever, 11 (2) from measles, 5 (3) from scarlet fever, 12 (3) from whooping-cough, 34 (5) from diphtheria, 58 (16) from diarrhœa and enteritis under two years, and 31 (5) from influenza. The figures in parentheses are those for London itself.

Stoke-on-Trent and Middlesbrough each reported 2 deaths from measles. Liverpool, Manchester, and Newcastle each 2 deaths from whooping-cough. Diphtheria claimed 3 victims each at Liverpool, Dewsbury, and Hull. Diarrhœa was credited with 5 deaths at Nottingham, 4 each at Birmingham and Liverpool, 3 each at West Ham, Manchester, and Salford.

The number of stillbirths notified during the week was 262 (corresponding to a rate of 41 per 1000 births), including 44 in London.

THE LANCET.

LONDON: SATURDAY, OCTOBER 31, 1931.

ALBUMINURIA IN PREGNANCY.

THE rapid increase and improvement of antenatal work throughout the country means that more and more women are having their urine regularly examined throughout pregnancy. There is, therefore, a growing need that practitioners should have a clear conception of the significance of albuminuria in pregnancy and of the treatment necessary to avoid complications which may come in its train. Mr. G. F. GIBBERD has lately given us a valuable exposition of these matters,[1] and it is appropriate to consider his opinions in conjunction with those expressed by Dr. G. W. THEOBALD at p. 948.

Dr. THEOBALD suggests that the albuminuria associated with pregnancy can be accounted for by mechanical means, among which he places first lordosis and the diminished thoracic capacity associated with the later months of pregnancy. He shows clearly that dogs pass small quantities of albumin when placed in a position of marked lordosis; on the other hand, such experiments hardly reproduce the normal anatomical condition of the abdomen late in pregnancy. His success in producing slight albuminuria in non-pregnant human beings by maintaining a modified Walcher position for 40 minutes will also be criticised as bearing little relation to the normal. Again the slow deep breathing which, he shows, may cause transient albuminuria is by no means usual in the later stages of gestation. There will be general agreement, however, with his observation that the incidence of experimental orthostatic albuminuria is affected by diet—that after a meal rich in protein albuminuria appears earlier and is of larger amount than after a meal poor in protein. Moreover his proof that venous congestion of the kidney causes albuminuria in dogs is supported by a certain amount of clinical evidence that venous congestion sometimes plays a part in causing the albuminuria of pregnancy. Thus a raised intra-abdominal pressure is more frequently seen in primiparæ than multiparæ, and so is albuminuria—both being more marked as full term approaches. But cases are common in which the pressure is raised yet there is no albuminuria and this indicates the operation of one or more additional factors, notably toxæmia. Further, the appearance of albuminuria in the early stages of pregnancy makes it certain that albuminuria must often be non-mechanical in origin. We are forced to conclude that in no case of albuminuria of pregnancy is it safe to presume that the cause is solely mechanical. Blood pressure estimations should undoubtedly form part of the routine daily investigation of every such case, but to suggest that albuminuria in the absence of a raised blood pressure is of no significance is to imply that treatment is unnecessary, and this may be disastrous.

The only known cause of the toxæmias of pregnancy, in Mr. GIBBERD'S view, is pregnancy, and he does not discuss the possible predisposing factors; but his papers throw much light on the immediate and remote prognosis. He lays stress on the pre-eclamptic nature of the albuminuria and quotes the interim report of the Committee on Maternal Mortality as showing that in two-thirds of the fatal cases of eclampsia investigated the urine was not adequately tested before the fits started, and that in the majority of the remaining cases where albumin had been discovered reasonable treatment had not been immediately begun. In 8000 deliveries by the Guy's Hospital obstetric department in the last five years, he says, 300 cases of albuminuria of pregnancy were discovered and treated. There were only two cases of eclampsia—one of the rare fulminating type, and the other in a patient who refused treatment for her albuminuria. Dr. THEOBALD believes that 20 per cent. of eclampsia is of the fulminating type, a very high estimate. He has also reported two cases of eclampsia without albuminuria,[2] but these must be exceedingly rare. Mr. GIBBERD finds that 3 to 5 per cent. of all previously normal women develop albuminuria during pregnancy, and that more than half of these, in the absence of proper treatment, sustain permanent renal damage. Ten per cent. of them show patent chronic nephritis, while 50 per cent. have recurrent albuminuria in subsequent pregnancies. He infers in these the existence of an "occult nephritis," but unfortunately he does not explain clearly the character of the chronic nephritis usually found, nor estimate the consequent interference with health and limitation of life. It is well known that death from chronic nephritis may follow albuminuria of pregnancy after a period of years, but Mr. GIBBERD'S estimate that this is the fate in 10 per cent. of all cases is unexpectedly high. It is to be hoped that in the near future he and other workers will be able to offer a more precise ultimate prognosis. What is the fate of his many cases of occult nephritis where there are no further pregnancies?

If the presence of chronic nephritis is proved in a pregnant woman Mr. GIBBERD rightly holds that the pregnancy should be ended, both because it increases renal destruction and because the child has little chance of survival. His proposed treatment is based upon his figures, and may be briefly described under the headings of rest, diet, and if necessary termination of pregnancy. There is general agreement on the outstanding importance of rest in the treatment of all renal disease, and if his figures showing permanent renal damage in a large proportion of cases of albuminuria of pregnancy are confirmed by other observers the prevalent treatment of this condition

[1] THE LANCET, Sept. 5th, p. 520, and Sept. 12th, p. 576.

[2] Jour. Obst. and Gyn. Brit. Emp., 1929, xxxvi., 803.

must be severely criticised and altered. Ambulatory treatment combined with a diminished diet and saline aperients must be replaced by absolute rest in bed until albumin can no longer be detected. Difficulties will arise where the woman has no available domestic help, but this drastic treatment must be achieved if its necessity is proved. The accepted view is in favour of a diet consisting of glucose and large quantities of fluid in the first few days of treatment, but the continuation of a protein-free diet possibly for many weeks is open to objection. Probably the greatest degree of metabolic and renal rest is to be got by providing enough protein for the normal anabolic processes of the body at rest; for otherwise we shall unduly increase endogenous protein katabolism. All will agree that protein in excess of need means more renal work, both directly in excreting the excess and indirectly by the specific dynamic action produced.

The bowels should be kept regular, but clinicians differ considerably about the value of purgation and diaphoresis. Mr. GIBBERD favours both in moderation. He induces labour in all severe cases that fail to react to strict medical treatment, as outlined above, after a trial of two or three days. He also insists that even slight cases which fail to clear up completely after a fortnight's treatment should have labour induced. His figures show a very definite increase in the incidence of both patent and occult nephritis where the albuminuria has been allowed to continue three weeks or more.

BRITISH COLLEGE OF OBSTETRICIANS AND GYNÆCOLOGISTS.

THE British College of Obstetricians and Gynæcologists held its full dress ceremonials on Friday, Oct. 23rd, when Prof. BLAIR BELL, the President, conferred certain honorary Fellowships of an international character, admitted the newly elected Fellows and Members to their College, and then presided over the first annual dinner of the new corporation. The proceedings went with a smoothness and dignity which augurs well for the future.

It is widely known that the foundation of the College was attended with considerable difficulty. The idea of a separate medical corporation to take particular charge of obstetrics and gynæcology did not at first commend itself to many professional leaders, nor, which was very important to the pioneers of the movement, was it wholly acceptable to the Royal Colleges of Physicians and Surgeons. The successful promoters of the new College can be congratulated alike upon their diplomacy and their energy. Individual converts, they saw, would be obtained in sufficiency when the support of the Royal Colleges was obtained, and they concentrated upon this issue. They knew that before the aims and ideals of the new College could be recognised as sound, it would have to be shown that it would be able to do something which the existing Colleges could not do. To prove a negative is always hard, and a period of wrangling might well have ensued if the leaders of the Royal Colleges had not recognised the force of the arguments adduced by the innovators. Both insight and tact were displayed on either side over a considerable period, during which the services which a college of obstetrics and gynæcology might discharge for the good of the public were steadily made prominent. Thus it came to be recognised by prominent members of the Royal Colleges that they had not to protect their institutions from trespass, and these took, finally with readiness, the liberal view that public needs would be met by a body which would be of an auxiliary and not of a competing character. The principal argument for the foundation of the College of Obstetricians and Gynæcologists was, of course, the desire to combat maternal mortality, where the figures are an admitted reproach when the progress of medicine and surgery in every other branch is estimated. A College of the nature projected it was felt would provide fuller opportunities for the development of exact knowledge, would raise the standard of education on the subject, and give to the practitioner an added prestige. No one denies that in the institution of the College we have a certain separation of diseases peculiar to women from other branches of medicine and surgery, and that this does not accord with that unity in scientific medicine which is the accepted ideal. But the cleavage, such as it is, will not be of a nature to embarrass the public, and, with the development of the activities of the new College, it will be closed up, so as to represent only such a division of function as belongs to all orderly growth. It is urgently necessary that our standard of obstetrics should be raised; and while the Fellows and Members of the young corporation may regard this as their prime responsibility, they cannot fail to extend our wisdom along general gynæcological lines.

It is good to see that the Royal College of Physicians of London has already asked the College of Obstetricians and Gynæcologists for a panel of names for the examinership for the Conjoint Diploma; this is a practical step towards that fusion of interests which was held up as necessary by speakers at the first annual banquet of the College. For medicine to serve the public practically, it is particularly valuable that the medical profession should itself present a general uniformity of view.

RACIAL HERD-IMMUNITY OF THE MAORI.

AN appendix to the latest annual report of the Director-General of Health for New Zealand contains some statistics on the differential immunity of pure and cross-bred Maoris. A group of some 2000 children, aged 5 to 15, which included full, three-quarter, half, and quarter bred Maoris, were submitted to four immunity skin tests—Schick, Dick, Pirquet, and Casoni (intradermal injection of hydatid cyst fluid). According to these tests, the susceptibility of the group to diphtheria, scarlet fever, and tuberculosis definitely declined with age in the same way as is usual with pure European stocks. No age gradient was however

evident in the frequency of skin allergy to hydatid fluid. When the group was divided into the four racial sub-groups, except that the three-quarter European group was the most tolerant of tuberculin, there was no significant difference in the frequency of positive Pirquet tests (average 12 per cent.) or hydatid susceptibility (13 per cent.) between pure and cross-bred Maoris. But in the case of the Schick test, while 24 ± 1·4 per cent. of the half and quarter breeds had positive reactions, only 10 ± 0·5 per cent. of pure and three-quarter bred Maoris were Schick susceptible. For the Dick test the respective frequencies were very much less, but in the same ratio, being 4·4 ± 0·7 and 1·8 ± 0·2 per cent. respectively. The Schick test figures were controlled on a small sample of white children from the same district who were found to be 63 ± 5·0 per cent. susceptible. The small number of positive Dick reactions is consistent with the fact that scarlet fever is almost unknown among the Maoris.

In general, herd-immunity to parasitic disease is a function of the environment and genetic constitution of a group. Age acts by allowing time for acquired immunity to be stimulated, or for natural immunity to develop as a growth character. The frequency of the skin reactions to tuberculin and hydatid fluid did not vary to any marked degree in the four groups of differing "blood," so that it is fair to conclude that the age-distribution and environment were almost the same in each racial group. It therefore becomes almost certain that it was the dilution of Maori with white blood that led to the highly significant increase in the skin sensitiveness of the more European stock to diphtheria and scarlet fever toxin. This piece of work, which was carried out by Dr. TURBOTT, of Gisborne, is unique as being the only clear demonstration that racial differences are an important factor in determining the frequency of Schick and Dick reactions in a community. That this is so has always been suspected, but owing to the great difference in the habits and environment of white and coloured races, there could be no certainty that the greater herd-immunity to diphtheria and scarlet fever, which is generally exhibited by coloured races, was not simply an environmental phenomenon. That the higher Schick and Dick immunity of pure Maoris was largely secondary to an inborn racial difference is also borne out by the tendency to a reverse association of reaction with race shown by the Pirquet tests, where the group with the smallest admixture of Maori blood was least sensitive to tuberculin. Moreover, although Maoris are more subject to severe tuberculosis than Europeans, only 12 per cent. had positive Pirquet tests, which result was consistent for a community living in sparsely populated sheep-farming districts where difficulty in the dissemination of droplet infection was to be expected. These observations are in favour of the hypothesis that the herd-immunity for diphtheria and scarlet fever was higher in the pure Maoris than in the European cross-breeds, as the result of special racial, or genetic, characters, and not because the pure Maoris were subjected to more intense or frequent contact with the specific micro-organisms. This does not mean that circulatory diphtheria antitoxin can arise de novo as a growth phenomenon; an hypothesis which is favoured by P. HEINBECKER and E. I. M. IRVING-JONES,[1] and E. B. SCHMITH[2] to explain the Schick immunity of Eskimos living in districts where it was assumed (on very inadequate evidence) that diphtheria bacilli had always been absent. On the other hand, A. S. METCALFE[3] found in Thursday Island 96 ± 1·3 per cent. of the aborigines and 98 ± 1·2 per cent. of native-born Europeans were Schick positive. The latter observation from a remote island, in combination with European and American experience, makes it probable that diphtheria bacilli were, or had been, present among the Eskimos, and that coloured races, as well as white, acquire their circulatory antitoxin by latent immunisation—i.e., by sub-clinical infection with diphtheria bacilli. The coloured races, however, differ from white in having a higher degree of racial immunisability which enables them to respond more rapidly to, and perhaps to smaller doses of, toxin than Europeans.

Dr. TURBOTT'S interesting and laborious investigation, involving over 8000 skin tests, is one of the best pieces of evidence yet published that there are racial genetic differences of practical importance in *immunisability*, but it leaves unanswered the controversial question: Is it possible for specific antitoxins to appear in the blood irrespective of any stimulus from the corresponding exotoxin?

THE TEACHING OF SCIENCE.

DELIVERING the Alexander Pedler lecture of the British Science Guild on Oct. 21st, at Newcastle-on-Tyne, Prof. Irvine Masson, D.Sc., reviewed education in pure science as now carried on at our universities and in schools. Has the pendulum overswung? he asked. Are we teaching too much science? Or teaching science too much? To those who are going to be lifelong scientists, we must and do give an intensive training; but every science is swelling now so quickly that it can no longer be confined within the three-year limit of the undergraduate course. Two more years are needed, and are actually expected of a young man before he is eligible for a first post as a practising scientist. This needs universal recognition. To those who are not going to be scientists, we are trying, in Prof. Masson's opinion, to teach too much and too specially. The figures for the whole country show a great preponderance of "honours" over "pass" students, and a great many of these honours specialists do not go on with further training in their science, but turn to school-teaching, besides other occupations. These carry into the schools the same exclusive specialisation, and a vicious circle is created. It is helped, if not caused, by the higher salaries paid under the Burnham scale to school teachers who are honours graduates. If this were altered, and the universities reformed their pass-degree courses, we should get much better-balanced teaching in schools; and the whole series of educational sieves through which our young people pass (or are forced) would work naturally. In the schools, especially the secondary schools, exaggerated science teaching goes on on a very large scale from absurdly youthful ages, while other subjects—e.g., German, are neglected. These things, Prof. Masson believes, are as bad for the future scientist as they are for all his brothers and sisters.

[1] Jr. Immunol., 1928, xv., 395. [2] Klin. Woch., 1929, viii., 974. [3] Med. Jour. Australia, 1924, i., 111.

ANNOTATIONS

THE WORLD TO-DAY.

"FEW will deny that the world is in a state to provoke the laughter of the gods." The remark is made by Prof. William McDougall in a prefatory note to his expanded Ludwig Mond lecture.[1] The gods may well laugh at the world confusion that has followed the high hopes of the victors of the Great War, and the statesmen of our Western civilisation seem as powerless as the characters in a Greek tragedy to understand a threatening disaster in which their own actions and principles, however well intentioned, are undeniably playing the greatest and most important part. To the reader of this little book the strife of our general election, with its concentration upon the necessities of the moment, appears at best a local effort to temporise with world-wide economic difficulties the causes of which must be sought in a fundamental defect of our social machinery. McDougall believes this defect, whatever it may be, has arisen from the devotion of our energies to the material sciences and our almost complete neglect of the study of human and social factors. He points, for example, to the effect of mass production in America in increasing "technological unemployment"—the excess of firing over hiring—and asserts that every step of progress physical science may make in the near future can only add to our dangers and perplexities by increasing the top-heaviness and the lop-sidedness of our civilisation. In one group of American companies the output per man has increased by 74 per cent. since 1919; farmers, still the backbone of the country, were meanwhile finding their position increasingly difficult, and with the fall in wheat prices it has become desperate. The combination of increased production and increasing unemployment all over the world renders paradoxical our own necessity for economy and stimulation of output, and for this paradox economists have no convincing explanation. Indeed, for economists McDougall has little respect. He admits that their predictions are not always wrong; they make so many that the law of chance favours them sooner or later. But the less exacting test of power to explain after the event finds them lacking. Could there be, he asks, a greater diversity of opinions and acuter opposition of authorities than on the question of the grounds of the present world-wide economic slump, or any other economic phenomenon you please? The essential economic facts are human passions and interests, and text-books are full of inexorable laws whose only defect is that mankind will not obey them.

The remedy is pointed out by Dr. Abraham Flexner, who wrote, in his recent book on Universities, "Somewhere, away from the hurly-burly of practical responsibility and action, the social and political problems involved in these disorders must be exposed." Our frame of mind is to be recognised as the cause of the paradox of distress in the midst of plenty, and a psychological foundation must be laid in order to convert economics from a chaos to a science, though psychology may never be able to present simple conclusions in the shape of a formula. The hedonistic assertion about human motivation must be discarded, and instead we must try to answer the question, "What place has thought or reason in guiding man's social behaviour?" Our most powerful intellects should be diverted from the physical sciences into research into the biological, the human, and the social sciences. We need, too, a new scale of values in the public mind, a scale in which such prestige shall attach to the social sciences as hitherto physical science alone has enjoyed. With this accomplished, and premature applications to practical problems being avoided, McDougall thinks that substantial progress might be expected within some 40 years, but he doubts whether our civilisation can survive in the meantime.

[1] World Chaos: the Responsibility of Science. London: Kegan Paul. 1931. Pp. 119. 3s. 6d.

OPIUM IN THE FAR EAST.

BY the International Opium Convention signed at The Hague in 1912 the Contracting Powers undertook to "take measures for the gradual and effective suppression of the manufacture of, internal trade in, and use of prepared opium"—that is, of opium prepared for smoking—and engaged to "prohibit the import and export of prepared opium"; those Powers which were not yet ready to prohibit immediately the export of opium for smoking undertook to do so as soon as possible.

Although nearly all the Powers are now parties to this Convention, little or nothing has been done during the 18 years which have elapsed to give effect to these pledges. Indeed the Geneva Conference of 1925, by protocol, postponed the suppression of opium smoking to a period not more than 15 years from a date when a Commission of the League of Nations should decide that the export of raw opium from producing countries no longer constituted a serious obstacle to reduction of the consumption of opium in consuming countries. The matter further engaged the attention of the Council and the Assembly of the League in 1928 and 1929, when a Commission was appointed to visit the Far East and report on the measures taken to fulfil the treaty obligations of 1912 and 1925, and on the difficulties presented by the illicit traffic in opium. A Commission of three, of which Mr. Eric Ekstrand was chairman, proceeded to make elaborate investigations over an area from Japan to Java, and from Rangoon to the Philippine Islands. Two volumes, of 158 and 495 pages respectively, embodying the results of their inquiries, have now been published.[1] Vol. I. contains the report of the Commission; it epitomises the elaborate survey of the general situation in the Far East as regards opium smoking, with particulars in respect of each territory visited, and sets out the conclusions arrived at, along with suggestions made to the League of Nations and the Governments concerned. Vol. II. comprises more detailed descriptions of the investigations in the ten territories visited, including Burma, Straits Settlements, Federated Malay States, British North Borneo, Siam, the Netherlands Indies, Indo-China, Hong-Kong, Macao, and the Philippine Islands.

The Commission attributes the failure of previous efforts to combat opium smoking to lack of concurrent and progressive action on the part of the Powers concerned. It invites scientific research as to the relative harmfulness of smoking and eating opium. It urges the League of Nations to secure international

[1] League of Nations. Commission of Inquiry into the Control of Opium Smoking in the Far East. Vol. I.—Report to the Council, with comparative tables, maps, and illustrations. Geneva, 1930. 6s. Vol. II.—Detailed memoranda on each territory visited by the Commission. Geneva, 1931. 12s. Obtainable from Messrs. Allen and Unwin, at 38, Great Ormond-street, London, W.C.1.

control of poppy cultivation, without which it is impossible to arrest illicit traffic. It regards opium as an illegitimate commercial product, except for medical and scientific purposes, and recommends an international preventive service to stop the contraband trade. A Government monopoly of opium is favoured, and, pending suppression of smoking, the registration and rationing of smokers is advised; the establishment of Government divans for authorised smokers is suggested, while the cure of addicts is to receive attention. As regards opium revenue, which in some cases amounts to one-third of the total revenue, it is recommended that this be placed in a special account, against which should be charged the expenses connected with the campaign against illicit traffic, education, scientific research, the care and cure of addicts, and social and sanitary purposes. The Commission found it impossible to keep within the strict terms of their reference. Opium smoking could not be dealt with apart from opium eating, nor without relation to the traffic in other narcotic drugs. They say: "The radical method of dealing with illicit traffic in opium is by controlling effectively the cultivation of the poppy, allowing only such quantities to be produced under international control as are required for the world's medical and scientific needs." This accords with the view held by those who have made an exhaustive study of the question, and the contention was stoutly upheld by the United States delegation at the Geneva Conferences in 1924–25. The essential dependence on loyal coöperation by all the Powers for success in securing this objective is emphasised. The non-ratification of The Hague and Geneva Conventions by certain producing countries, and the failure of other Powers, and indeed of some of our own colonies and dependencies, in passing and enforcing legislation like that of the Dangerous Drugs Acts, 1920–25, constitute formidable obstacles to progress. The revelations contained in the reports of the Far East Commission should stimulate the League of Nations to more vigorous international activity.

RADIUM AT BURNLEY.

THE Victoria Hospital at Burnley has about 340 mg. of radium sulphate. It has also a very long waiting-list and an overdraft. In an effort to raise funds enough to provide beds for the waiting cases, the staff of the radium clinic have compiled a small booklet describing in simple language the properties of radium, its application to malignant disease, and its use in the hospital.[1] The clinic has now been working for about 20 months, and is the only one in Lancashire, outside Liverpool and Manchester, that has been devised and organised on modern lines. The equipment includes electrical inspection devices, a special camera and microphotographic apparatus, and a biochemical laboratory, and in the near future there will also be a deep X ray therapy plant and a surgical diathermy apparatus. About 160 patients have been treated, most of them with radium needles, but some with plaques, and every effort is made to keep records on approved lines. Owing to the shortage of beds, the whole amount of radium available cannot always be in use, and many patients who ought to be in bed have to come for daily treatment. The board therefore hope to be able to provide 14 beds for radium cases alone on the top floor of the new out-patients' building, as soon as enough money can be raised.

[1] Radium and Cancer, being a short account of the Aims and Work of the Radium Clinic at the Victoria Hospital, Burnley. With a foreword by The Rt. Hon. Lord Shuttleworth. Compiled by John H. Watson, F.R.C.S., Director, and H. Lawrie, B.Sc., Physicist to the Clinic. Pp. 40. Paper, 1s.; cloth, 1s. 6d.

HYPERPARATHYROIDISM: GENERALISED OSTEITIS FIBROSA.

OF the applications to clinical medicine of the newer knowledge of calcium metabolism none is so dramatic as the recognition of the effects of hyperactivity of the parathyroid glands on the skeleton. The isolation by J. B. Collip of an active parathyroid extract which produces on injection a rise of calcium in the serum with increased excretion by the kidney, and the recognition by D. Hunter and J. C. Aub that injections of this extract cause a loss of calcium from the bones, were important steps in deciding that in cases of generalised osteitis fibrosa the high calcium content of the serum, the increased calcium excretion in the urine, and the diminished density of the X ray shadows of the bones point with certainty to a lesion of the parathyroid glands.

Satisfactory proof of hyperparathyroidism now exists in 32 cases of generalised osteitis fibrosa. In 21 of these a parathyroid tumour was removed by operation, in two cases two parathyroid tumours were removed, and in four cases no parathyroid tumour was found at operation. Pain and tenderness in the bones were common, and spontaneous fracture was recorded in 14 cases. Thirst and polyuria occurred in five cases, renal calculi in ten, and hæmaturia in one. Hypotonicity of muscles was recorded in seven. In only six was the parathyroid tumour palpable in the neck. The largest tumour removed measured 7·5 by 5·0 by 1·8 cm., and weighed 26·2 g., and yet it had not been palpable in the neck owing to its situation behind the trachea. Nausea and vomiting, sometimes with abdominal cramps, have been described. Wasting is common in advanced cases. The serum calcium figures varied between 12·6 and 23·6 mg. per 100 c.cm., the plasma phosphorus between 1·0 and 2·7 mg. The output of calcium in the urine varied from a slight increase to eight times the normal figure.

In the majority of cases pain in the bones was abolished immediately after operation, and the mechanism of this is difficult to conceive. Decrease in size of osteoclastic tumours of bone within a few weeks of operation on the neck has been twice recorded. In three cases polydipsia and polyuria were promptly abolished. In many cases the levels of the serum calcium and plasma phosphorus and the excretion of calcium in the urine were restored to normal. Sometimes there was temporary hypocalcæmia and even oliguria, with subnormal excretion of calcium in the urine. Latent tetany after operation was common, and manifest tetany often occurred, with marked variation in severity. It was fatal in one case only, where two parathyroid tumours were removed. Nevertheless removal of two parathyroid tumours is not necessarily fatal—in fact, A. J. Walton records[1] a case where he removed two parathyroid tumours without even producing post-operative tetany. I. Snapper has published a case where tremor and acute mania occurred three weeks after operation, at a time when the serum calcium had dropped to 6·6 mg. per 100 c.cm. The condition was completely relieved in three days by the use of Parathormone injections in conjunction with a preparation of calcium given intravenously. This latter procedure must undoubtedly be regarded as the essential treatment of severe post-operative

[1] Brit. Jour. Surg., October, 1931.

tetany following removal of a parathyroid tumour. The post-operative treatment should include a high calcium diet and ultra-violet irradiation as routine procedures. Symptomatic improvement almost always occurs after removal of a tumour. Not only is pain in the bones abolished, but there is marked gain in weight, and many crippled patients have been able to dispense with sticks and crutches. Where no parathyroid tumour was discovered, removal of a normal parathyroid gland had no good effect in two cases, but removal of two normal parathyroid glands led to considerable symptomatic improvement in another. Increase in density of the radiographic shadows of bones undoubtedly occurs though it may not be obvious until two years after operation.

Prof. H. M. Turnbull has shown [1] that the changes in the skeleton are lacunar resorption, apposition, fibrosis of the marrow, and the formation of osteoclastomata and cysts. He brings forward conclusive evidence that the enlargement of the parathyroid glands is due to functional hyperactivity and not to autonomous neoplasm. If the changes in the bones are the result of excessive secretion of the parathyroid glands, the position is similar to that in Graves's disease, in which the cause of the abnormal activity of the thyroid gland is unknown. H. L. Jaffe, A. Bodansky, and J. E. Blair claim to have caused typical generalised osteitis fibrosa with cysts in young guinea-pigs and dogs by the prolonged administration of parathormone. They thus appear to have proved conclusively the correctness of the interpretation of the changes in the skeleton in man that has been suggested by Prof. Turnbull from examination of the histological processes.

Dr. Donald Hunter and Prof. Turnbull record [1] full details of the investigation of three cases of hyperparathyroidism operated upon by Mr. A. J. Walton. The reports of these cases illustrate how medicine, dietetics, experimental pathology, histology, physiology, and chemistry all have been called upon to direct the knife of the surgeon towards a tumour which he could not feel. Such happy coöperation is characteristic of much of the team-work which is going on amongst the research workers in our teaching hospitals to-day.

GASTRO-INTESTINAL SYMPTOMS IN THYROID DYSFUNCTION.

Of late years attention has been paid to what is called "masked hyperthyroidism." The usual picture is unexplained persistent tachycardia or auricular fibrillation, progressing ultimately to cardiac failure, where other signs of hyperthyroidism are absent or slight. J. R. Verbrycke [1] now describes 34 cases whose predominant symptoms were gastrointestinal, such as vague general abdominal pain nausea, and vomiting. Many of the patients also complained of nervousness, palpitation, and weakness. Tachycardia was the rule, and all but two of the cases exhibited tremor at some time or other. Loss of weight, though rarely mentioned, was found in the majority, while in all the basal metabolic rate was raised. No case in the series failed to respond to iodine medication, and a gain in weight of 4 lb. in a week was not unusual, which Verbrycke regards as strong confirmation of the correctness of the diagnosis. T. R. Brown [2] points out that under- as well as over-activity of the thyroid gland may manifest itself in gastro-intestinal symptoms. He has found that a number of people with chronic constipation have markedly low basal metabolic rates, and are easily fatigued and mentally dull. One woman, whose constipation was so severe that a colectomy was under consideration, improved at once on treatment with thyroid extract. Most of such patients are middle-aged obese women. Brown suggests that these cases are true examples of hypothyroidism in which the constipation dominates the clinical picture to the exclusion of the other features, and he says that the diagnosis of masked hypothyroidism should be thought of wherever there is intractable constipation in women in the fourth and fifth decades.

[1] Jour. Amer. Med. Assoc., Aug. 22nd, p. 513.
[2] Ibid., p. 511.

TRANSMISSION OF DISEASE.

In his presidential address to the Section of Comparative Medicine of the Royal Society of Medicine on Oct. 28th Dr. J. A. Arkwright showed how close has always been the link between the study of human and animal diseases, especially on the side of pathology. Our more intimate knowledge of infective disease is largely founded on observation and experiment in connection with diseases of animals. In illustration he took such recent additions to our knowledge of the spread of infection from wild animals to man and domestic animals as psittacosis, rabies from biting bats, typhus fever from rats, and the infections acquired by man from drinking raw cows' milk. The essential factor of human lice in the spread of epidemic typhus has been recognised for 20 years, but the means of transmission and the source of sporadic typhus-like disease all over the world has only been on a hypothetical basis and supported by circumstantial evidence. The association of rats or mice with cases of typhus in man has sometimes been very striking. Contrary to most previous experimental evidence it has now been conclusively shown that wild rats may be infected with typhus, and that the disease may be communicated from rat to rat, or rat to guinea-pig, and presumably from rat to man by rat-fleas. Wild rodents, as is well known, act as a reservoir of Rocky Mountain spotted fever and other human diseases. Spencer pointed out that one species of tick can transmit four diseases to man. Some wild mammals are known to be susceptible to foot-and-mouth disease, and wild rats have been caught harbouring this virus, but there is no evidence how long it is retained in a rat population, though it may be transmitted experimentally by natural means from rat to rat. Streptococcal infection due to drinking milk may be taken as an instance of disease directly transmitted from animals to man without insect vectors. The cows providing the infective milk have been shown to be suffering from a definite mastitis distinct from the ordinary garget and their milk to be heavily infected at the start. These cases of mastitis, due to strains of streptococci like those infective for man, are more common than was supposed till recently. The resulting tonsillitis in man is a serious disease. Besides the severe and even fatal cases of septicæmia due to drinking raw infected milk, the tonsillitis once started is infectious from man to man. There is good reason to believe that similar sore-throats due to *S. hæmolyticus* or *pyogenes* are the exciting cause of attacks of rheumatic fever and the accompanying heart disease. Puerperal fever too is probably in some cases attributable to infection from attendants whose throats are infected with streptococci of this kind. Much recent work of this kind, said Dr. Arkwright, was emphasising the intimate connexion between disease in man and animals.

COMPILATION OF HUMAN PEDIGREES.

Now that human genetics is entering the sphere of preventive medicine, it is likely that the practitioner will be increasingly consulted on questions of genetic prognosis. For this reason, if for no other, it is highly desirable to have some uniformity in the recording of human pedigrees. The Eugenics Society has recently produced a schedule[1] designed for the use of medical men who are consulted upon such problems. When a patient asks a doctor for guidance about the advisability of marrying into a particular strain, or about the risks of transmitting a familial disease or defect to children, the doctor's first wish will be to scrutinise as full a pedigree as can be prepared of the two parties contemplating marriage or parenthood. The compilation of such a pedigree is always a laborious and time-consuming process which the patient should himself undertake provided that he has the necessary intelligence. The Society's schedule is designed for such as these. It contains full instructions about the particular symbolism and method of recording kinship which should be employed and a blank chart on ruled paper on which the pedigree should be plotted. Six blank pages are provided for the record of comments, either upon affected individuals shown in the pedigree, or upon the pedigree as a whole, or upon any of its component strains. A pedigree illustrating the inheritance of senile cataract is given as a specimen. Though this schedule will be of little value in the case of defectives or low-grade families, the members of which will not be able to understand the instructions, it may well prove useful to practitioners, who are consulted on genetic questions, in those categories of disease which are generally recognised as hereditary. The schedule is the only thing of the kind which exists in this country. Those interested in the study of human heredity who, for the benefit of their children, wish to prepare a permanent record of their own ancestry, can obtain a more comprehensive schedule.

CONTACT GLASSES.

IN the current number of the *British Journal of Ophthalmology* Mr. A. Rugg-Gunn returns to a consideration of the contact glasses, which excited lively interest in the summer at the Oxford Ophthalmological Congress. While no claim of general applicability is made for the new device, it is evidently useful for exceptional cases. Since a contact glass, or rather the fluid meniscus that it encloses, neutralises all corneal astigmatism, their most obvious use is in cases of conical cornea and irregular astigmatism due to past corneal disease, cases in which improvement by ordinary glasses is often very trifling. For cosmetic reasons they may have a place on the stage. And by permitting a full range of movement of the eyes they should be useful in certain forms of sport such as tennis. Mr. Rugg-Gunn claims, too, that they are of definite advantage in cases of anisometropia by securing uniformity of size in the retinal images—an end which is sometimes so difficult to attain by ordinary methods that the attempt to obtain binocular vision may have to be given up as impossible. Even with monocular vision, and still more with binocular, a contact glass is superior to a spectacle lens in giving a better appreciation of perspective. These points are made good in the article by elaborate optical formulæ and charts derived from the publications of Dr. H. Hartinger. On the other hand, it must not be supposed that the prescription of contact glasses is a simple matter. In spite of the technical excellence now obtained in their manufacture, the surgeon has to give much time, care, and thought to obtain an exact fit of the scleral brim. The fitting is, in Mr. Rugg-Gunn's words, not so much an optical as an orthopædic problem. The length of time during which such a glass can be worn without discomfort varies. Some persons cannot tolerate them at all. Others find about three hours the limit. Others, again, wear them all day, and only remove them at night. Their cost is necessarily considerable.

[1] How to prepare a family pedigree. Issued by the Eugenics Society, 20, Grosvenor-gardens, London, S.W.1. 6*d*.

HEALTH OF THE ROYAL AIR FORCE.

THE report on the health of the Royal Air Force for the year 1930[1] shows a marked decrease of sickness compared with the previous year. The decrease amounts to 53 per 1000 of strength for cases admitted to hospital or station sick quarters, and to 116 per 1000 for all cases of medical non-effectiveness. The rate of invaliding home from abroad is the lowest on record—viz., 12·8 per 1000, and the final invaliding-rate is considerably lower than in previous years. The death-rate, on the other hand, is a little higher—viz., 4·2 per 1000, whereas it was 3·4 per 1000 in 1929, and the incidence of venereal disease has risen from 15 to 16·1 per 1000. The report gives a number of tables analysing the various conditions which accounted for sickness in the force. Excluding tuberculosis, disease of the digestive system is responsible for the greatest percentage of deaths, and is followed by pneumonia; while invaliding is chiefly due to diseases of the nervous system, with tuberculosis coming second. Flying units show the lowest amount of disease and the highest death incidence, as would be expected; and aircraft apprentices show the highest disability incidence, but they have had a very much lower incidence of upper air-passage infection and influenza in the last 12 months. The principal causes of medical non-effectiveness in all groups were, in order: injuries, gonorrhœa, tonsillitis, appendicitis, malaria, and upper air-passage infections. An important part of the work of the R.A.F. medical service is the examination of candidates for commissions, who have to reach a very high standard of physical efficiency if they are to be accepted for the flying arm. During the year under review, 685 candidates were examined, and 432 (or 63 per cent.) were accepted. Defective vision continues to be the most frequent cause of objection, followed by failure to pass the physical efficiency test. The electrocardiograph and orthodiagraph have continued to be valuable accessories in the assessment of cardiovascular efficiency, and a series of observations on the effects of oxygen in the performance of mental and physical tasks has been made in the low-pressure chamber. The results of these observations will be published in due course and should prove of great interest. Of the 2793 candidates for enlistment, 40 per cent. were accepted as fit; the commonest causes of rejection were loss or decay of teeth, poor physique, deformities of the feet, diseases of the heart, and defects of vision, in that order. A dental branch formed in July, 1930, at present consists of 27 officers and 40 other ranks. There has been a marked improvement in oral hygiene throughout the service and a greater inclination to apply voluntarily for examination. A dental radiological department has recently been established at Uxbridge. The average

[1] H.M. Stationery Office. Pp. 59. 1*s*. 4*d*.

strength of Princess Mary's R.A.F. Nursing Service during the year was 97, and the same number of hospital orderlies under training attended a course before proceeding to Halton. A number of aircraft hands were given courses of lectures and demonstrations on their selection for sanitary duties in training camps, and more than 200 short-service commissioned officers received hygiene instruction during their preliminary training at the depot. Units abroad had to deal with dysentery, malaria, and sand-fly fever, but the preventive measures taken were satisfactory; aeroplane landing-grounds have been established at carefully chosen sites, so that men do not come into endemic areas, and the mosquito-proofing at Karachi and Kohat has been completed. This is a gratifying health record of a force which is exposed to many risks.

SUICIDE AND EUTHANASIA.

LAST week we reported at some length Dr. Killick Millard's presidential address to the Society of Medical Officers of Health in which he drew a fundamental distinction between voluntary euthanasia and suicide. His proposal is to make it legal under proper safeguards for individuals to substitute a quick and painless death for a slow and painful one where death is inevitable and prolongation of life only a tax on relatives and friends. Such legalised voluntary euthanasia, he said, would be a rational, courageous, and often altruistic act. Suicide, on the other hand, was often resorted to as an easy way out of difficulties and was then an act of moral cowardice. This side of the picture was drawn by Dr. D. H. Geffen, medical officer of health for Enfield, at a meeting of the Medico-Legal Society a few days later. Every year, he said, some 5000 lives are lost from suicide, and just as the actual death-rate from puerperal disease is only the dark centre of a wide cloud of morbidity and unhappiness, so the actual suicide-rate indicates a terrible amount of misery in the homes of attempted suicides, as well as among those who are left when the attempt has not failed. But absolutely nothing was being done to prevent this appalling waste of useful lives. Disregarding the formal verdict of "temporarily insane," which might be applied to any impulsive act, only about one case of suicide in every five, he said, was due to insanity in the proper sense of the term. The large proportion were normal sane people temporarily overcome by the burden of mental depression which most of us have experienced and which no reasoning can disperse. This depression Dr. Geffen regards as a definite form of illness, mentally infectious, which should be dealt with like any other infectious illness. Up to the age of 30 it seems to affect men and women equally, but after that it affects three times as many men as women, for life, on the whole, bears more heavily on the mature man than on the mature woman, though the problems—particularly the sex problems—of adolescence and the third decade fall about equally on men and women. The disease affects white races more than black, and in America falls most heavily on those employed in the liquor trade, and on chemists and druggists. Possibly alcoholism and the availability of poisons play an ætiological rôle in these groups. Lawyers, he said, come third, and physicians fourth.

If then suicide is to be regarded as an infectious illness, the first step is to prevent infection, which can be done in two ways, both of which were urged at the Eastbourne meeting of the B.M.A.[1] The first is to stop misleading talk about the "hereditary" nature of suicide. If a man believes that he is destined to commit suicide because his parent did, he is mentally infected and is the less likely to be able to struggle with difficulties when they arise. The second measure is to stop the accounts of suicide in the newspapers; there are many authentic cases of imitative suicide. Among Dr. Geffen's other proposed preventive measures were the removal of suicide from the list of penal offences—its inclusion, he thinks, has no other effect than to encourage the suicide to ensure the success of his attempt—and efforts to make the means of suicide, particularly coal-gas, less readily available. He advocates three lines of treatment: complete rest, including separation from the environment which led to the attempt or thought of suicide; the finding of suitable occupation—a measure made infinitely more difficult by press reports; and reinstatement of the patient in his place in life. People who attempt suicide, he said, are seldom those who use their hands very much or are interested in hobbies associated with the use of the hands. Kind as magistrates are and hard as they try to do their best, they are not psychologists, mental specialists, or doctors, and it ought to be the ordinary custom in these cases for the police to take the patient, not to court, but to a trained expert for investigation of his troubles in comfortable surroundings and detention if necessary in a special hospital.

[1] See THE LANCET, Oct. 3rd, p. 744.

AT the Royal College of Physicians of London, Dr. J. S. Fairbairn will deliver the Bradshaw lecture next Tuesday, Nov. 3rd, at 5 P.M. His subject is the Medical and Psychological Aspects of Gynæcology. Dr. James Collier's FitzPatrick lectures, on the Development of Neurology from the commencement of the Nineteenth Century to the Present Time, will be given on Thursday, Nov. 5th, and Tuesday, the 10th, at the same hour.

LONDON MEDICAL SOCIETIES.

SESSION 1931–32.

To the list which appeared last week (p. 939) should be added:

North London Medical and Chirurgical Society:—President: Dr. J. R. B. Dobson; Hon. Secretaries: Dr. W. E. Snell and Dr. Kathleen F. Matthews. Address: Royal Northern Hospital, Holloway-road, N. 7.

Paddington Medical Society:—President: Dr. G. de Swietochowski; Hon. Secretary: Dr. J. Cohen. Address: 23 Westbourne Park-road, W.2.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE.

THE following appointment is notified: Surg. Lt.-Comdr. (D) W. C. G. Ford to *Victory*, for Portsmouth Barracks.

ROYAL NAVAL VOLUNTEER RESERVE.

Surg. Comdr. D. D. F. Macintyre is placed on the retd. list with the rank of Surg. Capt.

ROYAL ARMY MEDICAL CORPS.

Lt.-Col. P. Dwyer retires on retd. pay.

TERRITORIAL ARMY.

Lt. H. R. R. Mavor to be Capt.

TERRITORIAL ARMY RESERVE OF OFFICERS.

2nd Lt. C. E. Bevan, from 92nd (5th Lond.) Fd. Bde., R.A., to be Lt.

POST-GRADUATE LECTURES

WE now conclude our series of abstracts of some of the lectures delivered at the recent post-graduate courses in London teaching hospitals. The courses are steadily growing in popularity and at St. Mary's, for instance, the average attendance has this year been about 200. The lectures summarised below were delivered at University College Hospital (Dr. Himsworth) and the London Hospital (Dr. Bedson, Dr. Hutchison, and Dr. O'Donovan).

CONVALESCENT SERUM IN THE PROPHYLAXIS AND TREATMENT OF INFECTIOUS DISEASES DUE TO FILTRABLE VIRUSES.

(DR. S. P. BEDSON.)

I FEEL that there is no need for me to enlarge on the importance to the practice of medicine of an intimate study of the filtrable viruses. It will suffice if I remind you that such diseases as measles, mumps, small-pox, chicken-pox, zoster, poliomyelitis, encephalitis lethargica, the common cold, and possibly influenza are due to agents of this class. And the question of the nature of this group of disease agents, interesting though it be, will have to be dismissed with the brief statement that the majority of investigators, in this country at any rate, consider these viruses to be living things probably akin to the bacteria.

The mechanism of the immunity to filtrable viruses, however, concerns us here and is entitled, therefore, to less summary treatment. In the past there has been a manifest tendency in the study of these viruses to exaggerate the superficial differences between them and the cultivable bacteria and to overlook fundamental similarities and nowhere has this tendency been more marked than in the field of immunity. It has been held that immunity to a filtrable virus has a mechanism different from a bacterial immunity—that it is a pure tissue immunity in which humoral antibodies play little or no part. This view is being steadily disproved and recent research has shown that in the immune state to the majority of filtrable viruses specific antibodies play an important rôle. The blood of people recovering from such diseases as measles, small-pox, or poliomyelitis, for example, contains specific immune bodies for the invading virus in considerable concentration and I wish to show how this fact can be made use of practically.

Measles.—The serum collected in the early weeks after defervescence can be used either to prevent or modify an attack of this disease when it is possible to administer it during the incubation period. Given during the first five days after exposure to infection, convalescent serum in an adequate dose will ensure complete protection and when injected from the sixth to ninth day after exposure will modify the attack; after that time the serum is without effect. In an institution such as a hospital one aims at giving complete protection for obvious reasons, but in general practice whether one decides to protect against the disease or to produce a modified attack will depend on the individual case. In all sickly children, and those under two years, complete protection is indicated, but in robust children over two years it is preferable to allow them to have a modified attack of the disease for in this way they acquire an active immunity and the modified disease is a trivial affair. As regards dosage, some authorities recommend 5 c.cm. for children under 5 and 10 c.cm. for those over that age. D. N. Nabarro, who has been one of the foremost in this country in the practical use of measles convalescent serum, gives 5 c.cm. for children up to 3 and 7 c.cm. above that age. At the London Hospital we start with a dose of 2 c.cm. for children up to 18 months, increasing the dose up to 5 c.cm. for those of 5 years; above that age 1 c.cm. is added for each year up to a maximum of 10 c.cm. Of course one cannot hope for 100 per cent. success in a procedure like this, but the results are remarkably good. Nabarro obtained complete protection in 98·1 per cent. of 625 children appropriately injected before the fifth day and the successes of others reported in the literature give an average figure of about 90 per cent.

The collection and preparation of the convalescent serum is not easy for the individual practitioner, but this can be got over by giving whole blood, double the dosage suggested for serum being employed. Naturally it would still be necessary to ascertain that the donor gave a negative Wassermann reaction (which entails a delay of two days), and suitable convalescents are not always available. However, the serum of adults who have had measles, though not as potent as convalescent serum, has protective power and M. Burn in Birmingham has obtained very satisfactory results, using an average dose of 7 c.cm. of adult serum for children under 5. Failing a supply of either convalescent or adult serum the whole blood of the parents might be used, provided, of course, that they had had measles and I would suggest giving 10 c.cm. in the early days of the incubation period. Probably with this dose of adult whole blood even given early the percentage of children completely protected would not be very high and a modified attack of the disease might be expected in the majority of cases.

Anterior poliomyelitis.—This is another disease in which convalescent serum has proved of considerable value. In this case the serum is used therapeutically and to be successful it must be given early (first three days of disease). This, of course, is a difficulty, for, apart from epidemics, it is not easy to make a diagnosis early enough for the use of serum to be worth while. But where this can be done the results are surprisingly good, as is demonstrated by the recent experience of serum therapy in Winnipeg. Sixty-six cases received serum, only four of these showed residual paralyses and none died, whereas of 54 that did not have serum 34 developed residual paralyses and 6 died; the dose employed was 20 c.cm. intramuscularly. It has been shown recently at the Lister Institute that it is possible to prepare an anti-poliomyelitic serum in the horse which is as effective as convalescent serum and can be concentrated in the same way as diphtheria or scarlet fever antitoxin.[1]

Post-vaccinal encephalitis.—Although with the modified form of vaccination now in use cases of post-vaccinal encephalitis will probably become rarer, it is as well to bear in mind that the use of serum of recently vaccinated persons has therapeutic possibilities. Sir Thomas Horder was the first to apply this, giving 5 c.cm. intrathecally in a case of post-vaccinal encephalitis; recovery was rapid and complete. J. Heckman in Holland treated 11 cases with serum and 9 recovered completely. One of the cases which died was moribund when serum was first given, the other succumbed despite repeated

[1] Dr. G. F. Petrie (Lister Institute, Elstree, Herts.) informs me that only a limited supply of this serum is available as yet.

injections of serum. The dose he employed was 10 c.cm. intravenously, repeated in some cases at intervals of 24 or even 12 hours. The response to the serum was quite dramatic, the temperature falling and the symptoms abating within a few hours of giving the serum. Grüneberg likewise reported the treatment of two cases with serum, both of which recovered. As in the case of poliomyelitis, recent work at the Lister Institute has shown that it is possible to prepare an antivaccinal serum in the horse, which will render recourse to convalescent serum unnecessary.[2]

Other conditions.—Encephalomyelitis, very similar to that appearing after vaccination, may occur as a complication of infectious diseases such as measles, small-pox, chicken-pox, and zoster, and the success which has attended the use of convalescent serum in post-vaccinal encephalitis makes the use of the appropriate convalescent serum in these other conditions well worth a trial. Mumps, too, is a filtrable virus disease which produces a solid and lasting immunity and its long incubation period gives ample opportunity for the prophylactic administration of convalescent serum. I put these suggestions before you for your consideration. They seem worth a trial and indicate the way in which the use of convalescent serum might be extended.

RECENT ADVANCES IN THE TREATMENT OF DIABETES.

(DR. H. P. HIMSWORTH.)

FOR the last two years that method of treatment in which the patient receives a comparatively high proportion of carbohydrate and little fat has been tried at University College Hospital. The method has been found very successful with the ordinary diabetic patient. Ketosis is much better controlled, there is less tendency to coma and to infection, and the general health is better. Furthermore, the diet is cheaper, less obvious to others, more palatable, and therefore more likely to be adhered to. The disadvantage is that when put on to the diet the patient, if not carefully watched, may drift during the first week when his urine is just becoming sugar-free into acute hypoglycæmia.

Diabetic coma is the result of poisoning by acetone bodies, and the treatment consists of their removal. In a normal person an increase of carbohydrate in the diet will remove acetone bodies, and similarly in diabetic coma sugar will enable them to be burnt off; but the diabetic will need insulin to enable him to utilise the sugar. Both sugar and insulin are necessary to the body for the removal of acetone bodies in normal or diabetic individuals. Indeed, the customary thought of treating diabetic coma by insulin, covered with sugar as a safeguard against hypoglycæmia, should be reversed. Sugar is what must be given, and enough insulin provided to enable the sugar in association with insulin to remove the otherwise fatal ketosis.

In the treatment of diabetic coma sugar may be given by the rectum, by the mouth, or by intravenous injection. Rectal administration is unsatisfactory because the sugar is absorbed only slightly and irregularly. Oral administration, often the only way available, is unsatisfactory because in many of these cases, especially where there has been vomiting, the stomach is dilated and the pylorus in spasm. Absorption of the sugar does not then occur, since it normally takes place in the duodenum and not from the stomach. Insulin, if given, is consequently liable to send the patient into hypoglycæmic coma.

For intravenous injection 10 per cent. glucose in saline is used; this is prepared by adding 1 drachm (4 g.) of salt and 60 g. of glucose to a pint of water, and sterilising by boiling. The following technique of injection has been adopted in hospital.

A Wassermann needle No. 19 is used because the fine bore only allows the fluid to run slowly. In a patient with collapsed veins the difficulty of introducing the needle may be obviated by the method suggested by Sir Thomas Lewis. A sphygmomanometer cuff is put on the arm well above the antecubital fossa, the pressure is raised to 200 mm. for two minutes in order to stop all arterial blood flow, and then dropped to 80 mm., a pressure which congests the veins but allows the full development of reactive hyperæmia after the arterial obstruction. If this procedure is not sufficient the vein may be rubbed or flicked or the arm may be immersed in warm water. It is important that as the flow is slow the temperature of the injected fluid should be 106° F.; if too high the patient sweats and may collapse; if too low he may have a rigor. When the needle has been introduced, the pressure in the sphygmomanometer is released and the rubber tubing from the feed funnel is connected to the needle, the arm is immobilised by a roller towel and sandbags, and the tubing is strapped to the forearm.

Subcutaneous injection of insulin may be used if the circulation is good, but otherwise its addition to the fluid for intravenous injection is essential. During coma 1 unit of insulin accounts for approximately 1 g. of glucose; 500 c.cm. of 10 per cent. glucose saline are therefore run in slowly and 50 units of insulin given by the route indicated. This is continued until the patient comes out of coma. The advantage of this method is that the patient while still unconscious cannot swing over from diabetic to hypoglycæmic coma because the insulin is continuously covered by sugar. When the patient is definitely out of coma 50 g. of glucose by the mouth and 25 units of insulin subcutaneously are given every three hours, the proportion of sugar being raised because insulin is more efficient out of coma. The urine is now tested each time before giving sugar, and when the acetone bodies disappear the patient is put on to a diet. Some patients are so dehydrated that even when out of coma they benefit from intravenous saline.

Where circumstances will not permit continuous infusion, intravenous injection of the above amounts of glucose and of insulin should be given every two hours. But these abrupt massive injections do not produce such a smooth, sustained, and sure effect as can be obtained by the continuous slow method.

If intravenous injection is impossible, in spite of considerable danger, glucose should be given by the stomach-tube. If this is done, the ratio of glucose to subcutaneous insulin must be raised to at least 2 g. to 1 unit because the absorption of the glucose may be slow and incomplete on account of dilatation of the stomach. There is no harm in giving excess of sugar; there is serious danger in giving too little in the presence of insulin.

The commonest cases of diabetic intoxication are those in which the patient is drowsy but amenable to treatment. All that it is necessary to do in these cases is to give, orally, 50 g. of glucose and, subcutaneously, 25 units of insulin every three hours

[2] As announced by the Ministry of Health this serum is available for use in cases of P.V.E., and can be had on application to the Lister Institute, Chelsea Bridge-road, London, S.W.

until the urine is acetone-free. As pure glucose solutions are very nauseating, it is often convenient to use Kia-ora lemon or orange squash, either of which contains 50 g. of sugar in 4½ oz., or Schweppe's tonic water, which contains 10 per cent. glucose.

The diagnosis between diabetic and hypoglycæmic coma is readily made by testing the urine for acetone bodies, using the ferric chloride reaction. If the condition is so critical that time should not be lost in waiting to collect a sample of urine and thus to arrive at the diagnosis, the best plan is to give at once a large dose of glucose. This can do no harm in diabetic coma and it is the right treatment for the hypoglycæmic state.

The successful treatment of diabetic coma is based on the removal of acetone bodies by administering abundance of glucose together with as much insulin as may be needed. It is a reasonable hypothesis that a similar line of treatment, keeping the carbohydrates high and the ketone-producing fats low would be successful for avoiding the onset of coma and thus be the right basis for the regular diet of any diabetic patient. It was this line of thought which led to the trial of high carbohydrate diets at University College Hospital.

A new patient, or one who has just come out of coma, should be put immediately on to a diet of 1500 calories (carbohydrate 120 g., protein 80 g., fat 75 g.). If the urine is sugar-free at the end of a week the diet may be raised to 1600 calories, and similarly after another week to 2000 calories (carbohydrate 180 g., protein 80 g., fat 100 g.). No elaborate calculations of the calorie requirements of the patient by height, weight, &c., are needed. The patient is ultimately given as full a diet as he feels inclined to eat, and while this may be sometimes less than 2000 calories it does not often exceed that amount. While the diet is being balanced the patient should be taught to test his urine for sugar, and should examine daily the specimen passed two hours after breakfast. Every third day six specimens in all, taken half an hour before and two hours after the three main meals, should be tested. Blood-sugar estimations are unnecessary.

Glycosuria in more than one of the six specimens at the end of the first week shows that insulin will be necessary, and it should therefore be started at once. The dosage should begin with 5 units twice a day, and be raised by 5 units first in the morning and then in the evening until only the after breakfast specimen contains sugar. While the patient is on insulin twice a day, the carbohydrates of his dietary must be chiefly given in the two meals, morning and evening, which follow the insulin. If it is found that at least a total dosage of 60 units will be required in the day, then the insulin should be given three times daily, the first dose being larger than the other two by 5 or 10 units, and the dietary being so rearranged that the carbohydrates are now equally distributed between the three main meals. As the balancing proceeds it will ultimately be found that the patient passes sugar only in the specimen two hours after breakfast. It is then rarely necessary to increase the insulin because the intermittent glycosuria will vanish if the patient is encouraged to take exercise and, if necessary, minor adjustments of his diet can be made.

In the week when the urine is first sugar-free the patient may swing into violent hypoglycæmia and this danger must be foreseen As soon, therefore, as the urine becomes sugar-free throughout the 24 hours the insulin should be reduced by 5 units from each dose, or even further, until glycosuria just reappears. The patient should also carry sugar for use in emergency. After this second balancing the dangers of acute hypoglycæmia are almost negligible and the urine may be allowed to remain sugar-free. It seems that more insulin is required to render the patient sugar-free than to maintain him so.

Many patients who had been balanced previously on a diet low in carbohydrate and high in fat have been found to balance again on the high carbohydrate diet with even less insulin than before. At present we are unable to explain why the insulin requirement does not rise with the considerable increase of carbohydrate in the diet.

PINK DISEASE.

(DR. ROBERT HUTCHISON.)

PINK disease is becoming more important—either because it was previously overlooked or because it is growing commoner. Certainly it is more often seen than recognised, and I cannot help agreeing with Still that we have been seeing it for a long time without giving it a name.

Some people, chiefly in America, call it acrodynia, signifying "painful extremities," but this term is used by the French to mean something different. Others again call it erythrœdema, but this is misleading because there is in fact no œdema. The disease is also known by the names of Swift and Feer; but such eponyms are best avoided, and it is probably best to keep to the non-committal name of "pink disease" which Clubbe first employed.

Clinical Characteristics.—Like many other conditions it affects children of a particular age. We have to remember that a year in childhood corresponds to as much as a decade in adults, and the disease which we are considering is one which is found chiefly in "toddlers." It is commoner in boys than in girls, it usually comes on in winter; and it has an odd way of breaking out in districts. There have been for instance "islands" of the disease near Birmingham and Newcastle-on-Tyne, whereas in the London area cases seem to be sporadic. The onset may be sudden, after an infection such as gastro-enteritis, but more often it is insidious, the first sign being commonly a change in the disposition of the child. Among the symptoms we may distinguish five groups: (1) Disturbances of well-being are a constant and striking and conspicuous feature. It has been said that in no other disease is the expression of the child so unchildlike. It will often frown or burrow into the pillow when one approaches, and it may show disturbance or reversal of the sleep rhythm such as is seen in encephalitis lethargica. (2) Next we have disorders of digestion. Anorexia and thirst are common, while a curious complication, often found in the Australian cases, is prolapse of the rectum—probably due to muscular hypotonia. (3) The circulatory changes are very important. We may see tachycardia and high blood pressure—reaching perhaps 140 systolic in a little child—and the degree of these signs is an index of the activity of the disease. (4) In the skin we first notice as a rule excess of sweating; it is said by some that sweating is not so pronounced in any other disease of childhood. In consequence come erythematous rashes. The hands and feet are swollen (not really œdematous) and podgy; they peel, so as to look like washerwomen's hands, and the epidermis may have a worm-eaten look. Along with these changes there is hyper-

æsthesia of the extremities; the children seem to itch or feel uncomfortable and are always rubbing themselves. (5) I have already mentioned the muscular weakness which may cause rectal prolapse. Sometimes the first indication that anything is wrong is that the child goes off his feet. The deep reflexes tend to disappear and indeed their absence is fairly constant when the condition is fully developed.

Course and Duration.—Usually, as I have said, the illness begins insidiously, and it takes about three months to reach its maximum. Thereafter it may last another two or three months without much improvement, after which recovery ordinarily begins. The mortality is estimated at 5 to 10 per cent. and death is as a rule due to some intercurrent infection such as pneumonia. But sometimes, we must remember, the children just die suddenly, although their illness seems to be running an ordinary course. It is therefore wise to be guarded in prognosis; but whether it is really desirable to disturb the parents by mentioning the possibility of sudden death I am by no means sure.

Nature of the Disease.—Every investigator agrees that pink disease is an affection of the vegetative nervous system—the vagus and sympathetic. Whether it is functional or organic we do not yet know. One lesion which has been found in many cases, though not in all, is changes in the peripheral nerves (hence the dreadful name of erythrœdema polyneuritis); but the true nature, the inwardness, of the disorder is not yet discovered. As in all diseases of obscure origin, two suggestions have been put forward. The first, of course, is that it is an infection; but it does not seem to me in the least like an infection. The second is that it is a deficiency disease, and I agree that it shows an extraordinary parallelism with pellagra. But it has not yet been proved that pellagra is itself due to dietary deficiency, and when I have inquired into the diet of children with pink disease I have not found it to be different from that of other children. For the present we must admit that the cause is entirely unknown.

Diagnosis in well-marked cases is easy. The difficulty arises in those cases seen early before changes in the extremities are pronounced. I would here lay stress on the mental and nervous symptoms. If in doubt one should pay attention to the cardiovascular system and if one finds tachycardia and high blood pressure, then the diagnosis is confirmed.

Treatment.—There is no specific treatment. The nursing and management of the child are very important, especially as nourishment depends on them, and if the case can be nursed in the open air that is all to the good, since it may prevent intercurrent infection. Feer says that he has had his best results from using atropine sulphate in doses of 5 to 10 drops of 1 in 1000 solution four times a day. Swift puts his faith in artificial sunlight; nine exposures at intervals of three days will cure most cases, he states. I cannot say that I have found it so, but certainly the treatment does no harm and may satisfy the parents that something is being done. Following an even later fashion, many cases are treated with liver, but my single experience of this remedy was not encouraging. For myself I rely chiefly, as I have said, on good nursing and management. If one wants to try anything else there is an a priori case in favour of atropine.

In order to relieve troublesome itching the following powder may be employed: camphor and boric acid each 10 parts; zinc oxide and talc each 40 parts.

ECZEMA OF THE LEG.

(DR. W. J. O'DONOVAN.)

ECZEMA of the leg is a common diagnosis among practitioners, and is a source of tremendous profit still to the vendors of proprietory medicines. Eczema is a term still too commonly applied to many wet or scaling inflammations of the skin, of the cause or nature of which the observer is ignorant. Norman Walker has pointed out that eczema is literally translated by the word "eruption" and it is clearly open to anyone to call any rash an eruption. The doom of this word is probably written. It has out-worn its usefulness, it is popular in the street and with the advertiser but it lacks precision and usefulness.

The eruption on the legs of which I am speaking appears, when well developed, as a bilateral scaling moist redness of both legs extending up above the calf and down to the level of the top of the boots. It is intensely irritating, lasting from three months to forty years, and is signally free from the common complications of bacterial infection. The start of this formidable eruption is generally simple and well recorded. It has begun as a small pimple which was rubbed, a spot of irritation which was treated with patent ointments or commonly it followed a definite injury, not necessarily severe. The patient's story may be "That at 4.30 P.M., on the afternoon of Nov. 7, x years ago, a bale of soft goods, weighing 7 cwt., fell from a height of 9 ft. and grazed his shin, the bruise never healed, and he has had a bad leg ever since." The imperturbable certainty with which this causa causans is recited is like the evidence of an old constable in the witness box; patient after patient will repeat it if encouraged to speak.

The bacterial flora that can be cultivated from these legs has often been described, but no specific vaccine therapy has resulted. Allied investigations upon the tonsils, teeth, and faces have not helped in classifying the nature of the process under consideration. To understand the ætiology, a review of a series of cases will show the following striking facts. When one leg is in a state of recognisable stocking erythema, the other leg may show only linear, blood-scabbed, scratch marks and no other reaction. It is reasonable to infer, then, that the itching is toxic or subjective and that the visible dermatitis is a secondary effect. The patients are often extremely garrulous, contemptous of skilled professional advice, much addicted to expensive quackery and show the suggestibility of hysteria in the form of Charcot's stigmata. Two human types predominate. The thin, worried, bolt-eyed, tremulous, quick-speaking patient whose facies was recorded by my assistant, Dr. L. Hartston, in the *British Journal of Dermatology* (1929, xli., p. 105); the other is of the fat type who sit heavily and complain with placid features of years of irritation and anguished, sleepless nights. The element of drama is frequently present. I have seen these patients produce an unloaded revolver to emphasize their need of treatment and threaten suicide, but they never do it. The condition is often allied with other admittedly nervous affections of the skin, the association with flexural prurigo or lichen simplex chronicus is marked. Occasionally the patients have also pruritus ani, vel vulvæ. A pillar of lichenised skin on the back of the neck was common in neurotic females with leg eczema as shown on some of the illustrations to-day. One of our patients has stocking erythema of one leg and definite dermatitis artefacta in the form of linear plough marks

upon the other leg. In none of these cases is there a coincident, or development of lymphangitis, adenopathy or scarring. I have not seen septicæmia, fever, or thrombosis develop in a single case, that is to say, I infer that we are dealing with a lesion produced by the development of an itch and scratch reflex, similar in nature and different in site only to psychogenic pruritus ani.

The response to a special line of treatment of these patients affords the clue to the nature of the disease. A divorce between the patient and the eruption is of fundamental importance. The actual nature of the local applications is of less moment. It is my practice to put these patients to bed with the affected leg raised upon an inclined plane, to deal with any small sepsis by a few white lint fomentations, and then to dress the leg with frequently renewed normal saline compresses. Local treatment by a small dose of X rays and by the application of highly coloured lotions, such as Sir Lenthal Cheatle's malachite green or brilliant blue, I regard as being useful in ministering to the patient's ego. The leg is the centre of their interest, without it life would be blank indeed, and the treatment that is directed towards replacing the red colour on which they have looked with interest for so many years, and by which they are prevented from rubbing the leg with the opposite heel or big toe nail or by their hands, will achieve a cure. We are all familiar with the grosser artefact lesions such as sloughs produced by spirits of salts and erythema produced by soda or turpentine, but there is a special group of unconscious artefact dermatitis found in suggestible patients; the distribution of their lesions is directly comparable to the glove or stocking anæsthesia familiar to general physicians and to neurologists. It is parallel also to the group of cases of dermatitis to which Dr. H. W. Barber applied the term "compensation complex" in *Guy's Hospital Gazette* (1930, xliv., 399).

This eczema of the legs is a common and persistent cutaneous disorder which from its peculiar and constant distribution entitles it to recognition as a clinical entity; furthermore, it is my opinion that it develops only in neuropathic patients. The treatment I counsel is the institution of general light baths, luminal in small doses to lower the patient's sensitivity to peripheral sensations, an occlusive dressing is needed for ambulatory cases; in bed we place the lesions under constant observation to prevent rubbing and scratching; this last is of more importance than treatment specifically directed against the inflamed skin.

PANEL AND CONTRACT PRACTICE

ANNUAL PANEL CONFERENCE.

THE Annual Conference of representatives of local medical and panel committees met in the Great Hall of the British Medical Association on Oct. 22nd; Dr. H. J. CARDALE took the chair for the second time. The most important business concerned the

National Economy Proposals.

Dr. H. G. DAIN, Chairman of the Insurance Acts Committee, British Medical Association, moved that the Conference approve a long supplementary report outlining the circumstances of the reduction which the Government had made in the remuneration of general practitioners, and containing the correspondence which had passed between the I.A.C. and the Ministry of Health. The May Commission had, he said, issued its report on the last day of July; no premonition of the contents of that report had been published by the Government of the day, even in the House of Commons. He and his colleagues had immediately been impressed with the extreme injustice of the paragraph relating to insurance practitioners. Parliament had risen for the summer vacation and the Ministry could take no action until it reassembled in October; the I.A.C. had been due to meet in September and discuss the report. The change of Government and the financial crisis had occurred, and the new Minister of Health, Mr. Neville Chamberlain, had invited the Committee to send a few representatives to discuss the situation with him and the Secretary of State for Scotland before the Government's proposals were made known and before Parliament reassembled. The Minister had disclosed to these representatives in private the extreme seriousness of the national situation, and had stated that the Government proposed to accept very largely the recommendations of the May Commission and to ask that the panel practitioner should accept a reduction of a shilling on the capitation fee as his share of the economy measures. The deputation had asked the Minister whether he really meant the capitation fee to be reduced, and Dr. Dain himself had stated definitely that a reduction would raise the question of the merits of the capitation fee of 9*s*., and that the committee would be prepared to go into that question with him; if, on the other hand, the Minister was not raising the question of the merits of the fee, but dealing with a national emergency, it would be better to reduce the fee by one-ninth. The Minister had replied that he had not intended to reopen that question, and had then given an undertaking that the money realised by the deduction of the shilling would go into the Treasury for the relief of the national emergency and would not be merged in any variety of national health insurance. The chemists were also, he had said, to take their share in the retrenchment.

The deputation had then pointed out that a reduction of a shilling represented not one-ninth, or 11 per cent., but more nearly 15 per cent., when allowance was made for the fact that the fee was not a salary but a remuneration for service, and not a net fee, but subject to the deduction of expenses for the conduct of practice. The Minister had assured the deputation that when it saw the whole of the Government's proposals it would be satisfied that the insurance practitioner was not being unfairly dealt with. He had given explicit assurances that these proposals were to be put through as a balanced scheme and were not capable of modification in any circumstances. The deputation, on those assurances, had undertaken to lay the matter before the committee and recommend that the panel practitioners should accept the proposal. An emergency meeting of the committee had been called a few days later, and it had agreed with the action of its representatives. It had thereby taken its courage into its hands and decided to recommend panel practitioners to accept the proposals of the Government.

NO ALLOWANCE FOR EXPENSES OF PRACTICE?

A week later the Minister had stated in Parliament that the proposals concerning the teachers, army, navy, and police had been modified to an all-round reduction of 10 per cent. Dr. Anderson had immediately written to the Minister that, since the alteration had been made for other people, the offer to the panel doctor was obviously reopened and that the I.A.C., which was to meet on the following day, would have the matter under consideration. The Minister had sent for Dr. Dain and had said that he was not able to implement the conditions under which he had made his last offer; he had expressed himself as very sorry to be placed in the position he occupied, but had said that he was unable to persuade the Government to modify the shilling reduction. The committee, at its meeting on the same day, had pointed out the injustice of the position, and had argued that, if the shilling reduction had been fairly comparable with the other reductions in the Government's balanced scheme, it could no longer be held equitable. The Minister had interviewed the Chancellor of the Exchequer, and the committee had received a letter in which the unfairness of leaving the doctors' reduction at a shilling was recognised and the proposal made to impose a 10 per cent. reduction. Dr. Dain had pointed out in reply that this proposal was entirely inacceptable, and that the committee were not likely to accept a reduction of more than 10 per cent. after an allowance for expenses had been made. After a long discussion the committee had agreed to this attitude; the Minister had met them the same evening in his room at the House of Commons and had said that he would have to consult the Cabinet. He had subsequently stated in a letter that he was unable to make an offer which would contain an allowance for practice expenses. The committee had replied that they could not accept the offer of 10 per cent. without this allowance, and had therefore laid the whole matter before the present Conference.

Dr. Dain read another letter which had been received from the Minister on the previous morning. The Minister expressed a strong hope that the Conference would coöperate with the Government in the very difficult task of placing the finances of the country on a sound foundation; while not at all unmindful that the capitation fee was subject to deductions for expenses, he had been unable for general reasons of public policy to take particular account of this fact in making his offer of an all-round deduction of 10 per cent. If the Conference accepted the revised terms, he would regard their action as a full and liberal contribution to the national need, and as justifying the views which he had previously expressed on the attitude of the medical profession.

In conclusion, Dr. Dain suggested that the Conference should approach the problem in two stages: it should first decide whether the action of the I.A.C. in accepting the original proposal had been justified by the circumstances; and then decide whether it would accept the later proposals, protest against them, or refuse service.

CRITICISM OF THE ACTION OF THE I.A.C.

A large number of motions had been put down by various local committees expressing approval of the committee's action and accepting a temporary reduction of 9 or 10 per cent.; many of them protested against having to bear a heavier reduction than other sections of the community. The great preponderance of opinion was strongly with the committee, the chief critics being Middlesbrough and London, which thought that the Conference or the panel committees ought to have been consulted first, blamed the committee for not combating the statements made in the May report, and advocated radical changes in the personnel and policy of the committee.—Dr. G. H. LOWE (Middlesbrough) moved, as an amendment to the motion to accept the appropriate part of the report:

"That this Conference protests against the action of the Insurance Acts Committee in agreeing to the cut in panel practitioners' remuneration without first consulting the panel conference, or the panel committees, or both."

His committee, he said, regarded the action of the I.A.C. as ultra vires; it would, he said, have been practicable to consult the panel committees.—Dr. G. DE SWIETOCHOWSKI (London) said that the general dissatisfaction of the London committees was not altogether with the amount of the deduction nor with the personnel of the committee, but rather with some of the methods employed, which were no longer suited to the needs of the day. It was not sufficient for the committee to meet every three months and talk about the damage which had been done to the interests of the panel practitioner; it should attack ceaselessly all bodies opposed to him. The committee was often spoken of as the spearhead of the Conference; he would like to see it applied with a certain amount of push.

Dr. R. L. E. DOWNER (Shropshire) blamed the committee for not having stamped on the unfair statements in the May report.—Dr. ALEXANDER FORBES (Sheffield) supported the committee, warning the Conference that, although the voice might be the voice of Middlesbrough and London, the hand was that of another body behind them.—Dr. J. L. LIVINGSTON (Hampshire) suggested that the first offer of the Minister had been in the nature of an ultimatum; Dr. DAIN agreed.

The amendment was lost by a very large majority, and the result was greeted with loud applause, after Dr. Lowe had emphatically repudiated the suggestion that his committee were inspired by any other body.

"A TEMPORARY MEASURE ONLY."

Dr. E. R. FOTHERGILL (Brighton) proposed the following motion, which voiced the sense of many others and made it unnecessary for them to be put to the meeting.

"That this Conference of local medical and panel committees approves the action taken by the Insurance Acts Committee throughout the negotiations with the Minister of Health with regard to the National economy proposals, and whilst fully recognising the special sacrifices which insurance practitioners are called upon to make, accepts on behalf of insurance medical practitioners the deduction of 10 per cent. from the capitation fee of 9s. as a temporary measure only, and as their contribution in the exceptional conditions in which the nation finds itself, the acceptance of such deduction being without prejudice to the future consideration of the present capitation-rate on its merits."

He pointed out that the economy cuts had been made by Ministers on an Order in Council and not specifically enacted by Parliament. The I.A.C. was announcing to local committees through the members of the Conference that it was futile to oppose the action of the Government. Admittedly, the sacrifice of the panel practitioners was disproportionate, but the country was in many ways back in 1914. The Conference must lay down the principle that the deduction was a temporary measure only. In 1924 a judge, sitting with a jury, had ruled that the capitation fee was 9s., and that ruling held good. Panel practitioners had three possible courses

of action: (1) to refuse service—which they would not do; (2) to accept the cut as their contribution to the national need; and (3) to ask the negotiating body to secure some compromise. A compromise would vitiate the clear issue, which was not whether the amount of the fee was equitable, but by how much it ought justly to be reduced. Public opinion, including local public opinion, would look upon the profession with scornful wonder if it did anything but accept the proposal. He appealed to members to persuade their committees to preserve a possession which was more precious than patriotism.

Dr. E. A. GREGG (London) moved the following amendment to the Brighton resolution:

"That, remembering the sacrifices made by the national health insurance practitioners in previous years in the interest of the nation, and bearing in mind the inadequacy of the capitation fee in view of the work that practitioners are called upon to perform, this Conference (*a*) protests in the strongest possible terms against the proposed percentage deduction from the remuneration of insurance practitioners; (*b*) protests against the inequality of sacrifice as compared with other sections of the community."

He denied that he was speaking as a "hand" or a "foot," or even as a "head." The London committee was supported by the vote of a mass meeting at which any practitioner had been free to express an opinion. While he did not propose that any practitioner should refuse service, or even modify it, he emphasised that it was unwise to use the word "accept." The profession had shown its patriotism many times in the previous deductions which it had suffered, and the "acceptance" of a further deduction would be entirely misunderstood. It should be suffered under protest. Every effort should be made to mitigate the severity of the 10 per cent. deduction from gross income. It was all very well for practitioners to advocate a sacrifice which would not bear heavily upon them; he would be more impressed by the views of some young man paying for his practice in instalments which absorbed nearly all his panel cheque. He refused an alteration suggested by Leicester, according to which part of the amendment would read "protests . . . against the amount of the proposed percentage deduction."

Dr. J. MCNAMARA (Nottinghamshire) assured Dr. Gregg that his partner, a young man in precisely the position which the speaker had outlined, was satisfied that the committee had done right, and asked the Conference to support its tried leaders in preference to others.—Dr. J. O. SUMMERHAYES (East Sussex) likened the Government to a woman patient whose husband, "old Bill," spent all his money treating his friends in the public-house and had to go on treating in order to keep his job. As a doctor and a gentleman, he would not haggle with that woman, but would take what she said she could pay. The "old gang" trusted the committee up to the hilt. He repudiated the insinuation contained in certain circulars asking the profession to take another course.—Dr. MABEL RAMSAY (Plymouth) quoted the resolution of the standing committee of the Medical Women's Federation, accepting the reduction as a temporary measure and approving the action of the committee. She asked for a definition of "temporary," pointing out that some authorities predicted the continuance of the depression for several years.

Dr. G. G. GENGE (Croydon) supported the London motion. He held that the real cut was approximately 20 per cent., and accused the committee of posing in a patriotic halo and burning incense before the Ministry of Health.—Dr. W. A. MARRIS (Birmingham) was for swallowing the pill gracefully, without protest, since there was no possiblity of avoiding it.—Dr. R. G. CHASE (London) supported Brighton, and declared that the mass meeting had not truly expressed the strength of the London opinion in favour of the committee.

Dr. E. O. TURNER (Buckinghamshire), Dr. K. M. FOSTER (Worcester City), Dr. T. CRAIG (Northumberland), and Dr. T. H. BATES (Newcastle-on-Tyne) supported the committee unreservedly, the latter holding that sufficient protest had been made and that the committee had not accepted the imputation of the May report.—Dr. DAIN was greeted with applause when he spoke to some of the points, and Dr. GREGG denied that he had exercised undue influence over the mass meeting.

The London amendment was lost by a very large majority, and the motion by Brighton was carried with three dissentients.

Dr. DAIN, in answer to a motion by Middlesbrough, said that the May report was sufficiently discredited by the fact that none of its recommendations had been accepted by the Government. The Conference carried, with only two dissentients, an amendment by Dr. H. B. BRACKENBURY:

"That this Conference protests in the strongest possible manner against the unsubstantiated statement made in the paragraph of the May report that payments to doctors are too high."

The following motion by London, originally part of the amendment:

"That this Conference urges that the question of the adequacy of the capitation fee be taken up with the Ministry of Health at the earliest suitable moment,"

was carried unanimously.

The New Disciplinary Machinery in Certification Cases.

A previous conference had agreed that panel committees might be grouped together for the purpose of providing professional committees to hear cases concerning certification. The lists of groups prepared by the Ministry aroused much criticism.—Dr. N. J. L. ROLLASON (Coventry) moved a resolution strongly objecting to the grouping of all panel committees of England and Wales, and stating that the principle of a forced amalgamation would undermine the stability and authority of the panel and local medical committees. He said that the panel committees were perfectly competent to do the work, and that under the new principle the Ministry would tend to deal exclusively with the regional committees. Several speakers supported this argument, and displayed a widespread objection to the whole scheme.—Dr. C. R. LUNN (Warwickshire) voiced the complaint of a residential area against being amalgamated with a neighbouring industrial area, and a fear lest the idea should be extended to cases of excessive prescription.—Dr. PETER MACDONALD (York) said that, although a previous conference had agreed that the principle of grouping was desirable, yet this did not mean a general consent to the grouping of all panel committees.—Dr. DAIN, who had already pointed out that no panel committee would be prevented from dealing with its own cases if it wished to, undertook to request the Ministry to assume that every panel committee would prefer to hear its own cases unless it agreed to be part of a group, and that every panel committee should be asked which course it would prefer. On this assurance, the Coventry motion was withdrawn.

The decisive victory of the I.A.C. over its critics earlier in the day made certain the rejection of motions by Durham and Wigan to prohibit it from taking important action without consulting the local committees. A motion by Cárlisle for the formation of

a new negotiating body exclusively composed of and elected by insurance practitioners, called forth a convincing speech by Dr. Dain on the constitution and record of the committee, and was heavily defeated, as was also a proposal by London to set up a committee to inquire into its constitution. A suggestion by Hastings that panel practitioners should have a journal to themselves was accepted by Dr. Dain for reference to the committee.

The National Insurance Defence Trust.

Mr. BISHOP HARMAN, treasurer, showed that the finances of the Trust were in a sound condition. Of the desired sum of £250,000, £170,000 had already been subscribed. He reproached vigorously the areas which had not yet paid up their quotas.

Much anxiety was aroused by the proposal of the I.A.C. to use part of the interest for pensioning off infirm panel practitioners to improve the service, and on subsidising lectures to final-year students. While the Conference would not pass an amendment by East Sussex prohibiting the use of the funds for the former purpose, it carried by a small majority an amendment by Brighton to delay their use until the total had been collected, and Dr. Fothergill was also successful in persuading the Conference not to allow the funds of the Trust to be used at all for the latter purpose. The first part of the proposal was accordingly withdrawn.

Dr. H. C. JONAS (Barnstaple) was elected chairman of the Conference, no other nomination being received.

SPECIAL ARTICLES

MEDICINE AND THE LAW.

Workmen's Compensation: Miners' Nystagmus.

THE House of Lords has just given judgment in lengthy litigation over a case of miners' nystagmus. Technically this is an "industrial disease" for the purposes of the Workmen's Compensation Act, compensation being awarded for it as for an accident. Lord Buckmaster explained in the course of his judgment that, if a man completely recovers from the disease, any fresh attack amounts to an independent accident; after complete recovery there may be a recurrence owing to the original susceptibility; if recovery is not complete, there is an added probability of recurrence. It is perhaps not surprising that mine-owners should make it a condition of employing a man that he should first declare that he has not suffered from miners' nystagmus.

In the recent case, a Lanarkshire miner had been disabled by the disease early in 1928 and had then received compensation as for total incapacity. Later on two occasions he was certified fit for work on the surface, whereupon the incapacity was deemed partial instead of total. In September, 1929, he was certified to have recovered from his attack of miners' nystagmus and to be fit for ordinary work. His employers consequently sought to terminate the payment of compensation. The miner, however, denied complete recovery. He said he could not get work on full wages because he had contracted the disease; he contended that his diminished earning power was due to the attack, and that his disablement and incapacity were still continuing; he therefore claimed the continuance of compensation. The arbitrator inclined to the miner's view; on appeal the Court of Session held that the compensation ought to be terminated, recovery having been certified. Finally the House of Lords, before deciding the issue, found it desirable to clear up the ambiguity about the extent of the recovery. The case was therefore remitted to the arbitrator so that the medical referee could answer the following question—did his certificate of recovery mean that the workman had completely recovered in the sense that he was not, after and in consequence of the attack, more susceptible to the disease than he had been before? The medical referee answered in the negative. The House of Lords thereupon held that the Court of Session had been wrong in treating this as a case of complete recovery. The referee's answer left open the question whether, after the ordinary symptoms had passed away and recovery appeared to have taken place, exposure to the same conditions might not cause immediate recurrence. Complete recovery could not be asserted; the rest was merely a matter of degree. The arbitrator was not obliged to terminate the compensation, but might consider the evidence as to continued disablement and incapacity.

Broken-down Motor-cars.

As most members of the medical profession own or use motor-cars, they are interested in a recent announcement of the Ministry of Transport as to the towing of disabled motor vehicles. The Road Traffic Act, as is well known, requires all motorists to be insured against third party risks. Certain insurance policies exclude liability where the insured car is hauling a trailer. A disabled vehicle has somehow been deemed a trailer in the eye of the law. In these circumstances motorists have been fined for giving a tow to a broken-down car on the ground that, when doing so, they are uninsured. This seems the limit of unreason. There is no insuperable difficulty in distinguishing a broken-down car from a trailer; the feat is not beyond the powers of policemen and magistrates; the constable and the justice must indeed have been ill-employed if they had nothing better to do than to promote and entertain such prosecutions. Fortunately common sense has prevailed. The Minister announces that, after consulting the insurance companies and Lloyd's underwriters, he understands that all authorised insurers have agreed that a policy excluding the hauling of a trailer shall not exclude the hauling of a disabled vehicle provided that no charge is made for such hauling and provided further (a perhaps unnecessary precaution) that the number of vehicles towed does not exceed the number of trailers permitted by the Road Traffic Act. Insurance policies will not require alteration in order to give effect to this modification.

For the statutory conditions under which a vehicle may be towed we must turn to the Motor Vehicles (Construction and Use) Regulations of last January. The Minister of Transport therein enacts that no motor vehicle shall tow any other vehicle unless the tow-rope or chain be so adjusted that the distance separating the nearest points of the two vehicles shall not exceed 15 feet, and steps shall be taken to render the tow-rope or chain easily distinguishable by other users of the road. These Regulations also provide for such matters as the brakes of, and employment of attendants on, trailers; but neither the Regulations nor the Act itself would seem to

encourage confusion between a trailer and a broken-down car. As to broken-down cars there are special Regulations under the London Traffic Act within the London Traffic Area. The owner or driver is liable to fine if he allows a motor vehicle to be in a street in such a condition that it breaks down, though he can defend himself by proving that he took all reasonable steps to put and maintain it in proper order. When his vehicle is broken down, he must remove it from the street as soon as practicable. A constable in uniform if he thinks reasonable steps have not been taken to remove the vehicle or that it constitutes a danger to traffic may forthwith remove it or use the services of others for the purpose, recovering the expense from the owner. In doing so, the constable is not to be liable for damages except upon proof of failure to exercise reasonable care.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

LEGISLATION ON THE MILK-SUPPLY.

LAST week Mr. R. Mulcahy, Minister for Local Government and Public Health, addressing a conference of local health authorities in Dublin, gave the outlines of the Bill which he is shortly to introduce to the Dáil to deal with the control of milk in the Irish Free State. The Bill is based on the work of an interdepartmental committee which presented a report in the spring of 1928. The long delay in introducing the Bill is all the more puzzling in that its provisions were outlined in the Dáil as long ago as July, 1929. In his address Mr. Mulcahy said that clean milk could be produced without any great expenditure on the construction or alteration of byres. Method rather than building determined its hygienic properties. The regulations would in time not alone deal with the lighting, ventilation, cleansing, drainage, and water-supply of dairies, but would secure a more thorough supervision, inspection, and examination of dairy cows, the proper grooming of the animals, personal cleanliness of milkers and distributors, the cooling of milk, and its conveyance and distribution in sterilised vessels and utensils. The registration of all persons carrying on the trade of dairyman, in addition to the registration of premises, would be made mandatory. It was further proposed to introduce a system of grading, to authorise the use of special designations, to define and control pasteurised milk, to prohibit the use of misleading terms, and to impose drastic penalties on the selling of dirty milk.

A CONFERENCE ON PUBLIC HEALTH.

The second conference on health of representatives of the public health authorities, arranged by the Department of Local Government and Public Health, was held in Dublin this week. The first had been held in July, 1930. The special subjects for discussion at this week's conference were the housing problem and the protection of the milk-supply. The discussion on housing was opened by an address from Mr. R. Mulcahy, Minister for Local Government and Public Health.

DINNER OF THE ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

As St. Luke's Day this year fell on Sunday, the President and Fellows of the Royal College of Physicians of Ireland held their annual dinner on Saturday, the eve of St. Luke. Prof. T. G. Moorhead, who is entering on his second year as President of the College, was in the chair, and there was a company of some 85 Fellows and guests. The principal guest was Mr. James McNeill, Governor-General of the Irish Free State.

DEATH OF DR. THOMAS NEILL.

The death of Dr. Thomas Neill, for many years a well-known gynæcologist in Dublin, occurred on Oct. 23rd, after some weeks' illness, in his seventy-fourth year. He had been much disabled for some years by rheumatism, and retired from practice a few months ago. Dr. Neill had a distinguished career in science in Trinity College, Dublin, and after taking his degree devoted himself for several years to the teaching of science. He subsequently entered on the medical curriculum, and took his medical degree in 1897. He was for a time assistant master in the Coombe Lying-In Hospital, and for many years was gynæcologist to the Drumcondra Hospital. He had also a large private practice. Modest and retiring in manner, Neill never took a large part in public professional affairs. He was, however, held in respect by all members of the profession, and very warmly esteemed by those who had the privilege of his friendship.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

RATS AND CATS.

THE first international conference on the rat was held in Paris in 1928, and its indefatigable secretary-general, Prof. Gabriel Petit, was able to present a report of it when the second conference met on Oct. 7th. This 400-page work (published by Vigot Frères, 23, rue de l'Ecole-de-Médecine, Paris, 80 francs) is a remarkably comprehensive survey of all or nearly all that appertains to the rat, and it was in a sense the text-book of the second conference. Among the contributions to the conference was one of considerable interest on the rat and plague in Madagascar by Surgeon-General Letonturier. Prof. Marchoux dealt with the rat and leprosy, and Prof. Brumpt with the parasites of the rat and their rôle in human pathology. Dr. Dujardin-Beaumetz, of the Pasteur Institute, and Dr. Hauduroy reported on the possibilities of conferring immunity to plague on the rat.

One of the most instructive excursions was that made on Sunday to Havre, where delegates had an opportunity of studying a promising scheme of breeding superlatively rat-catching cats, introduced by Dr. Adrien Loir, director of the public health service of Havre. It is a melancholy reflection on the sanity of man that while millions of pounds and other more or less valuable currencies have been spent on breeding horses which will run just a little faster, if it be only by a head, than other horses, little thought and less money have been devoted to the task of evolving a breed of cat so intensively ratophil that the satisfaction of this instinct becomes almost its only craving in life. The idea is, of course, not new. Robert Koch, among others, realised the necessity for encouraging the breeding of rat-catching cats. But it is the great merit of Dr. Loir to have transformed this idea into something more material, and to have put it on a both scientific and practical footing. Let us hope that when the perfect rat-catching cat has

been evolved by selective breeding and in such numbers that no more rats are to be found on the face of the earth, we shall not find ourselves saddled with a new species of animal whose existence raises fresh and unexpected problems.

FOREIGNERS IN FRENCH MEDICAL SCHOOLS.

Foreign medical students who find their hosts looking askance at them may extract what comfort they can from the reflection that it is not so much their quality as their quantity which disturbs the French. The statistics are illuminating. According to Prof. Balthazard's recent report, referred to in the *Presse Médicale* for Oct. 10th, out of a total of 11,375 medical students in 1930, as many as 3147 were foreigners. It is curious to find how greatly the proportion varies in the different medical schools. In Lille, for example, they constitute only 4½ per cent., in Marseilles only 6½ per cent., in Bordeaux only 8½ per cent. The percentage rises to 10 in Lyons, 19 in Toulouse, 34 in Montpellier, 36 in Paris, and 53 in Nancy. Prof. Sergent has remarked that the invading medical students come from the countries in which limits have been put to their numbers—especially Rumania. In 1913 only 50 Rumanian medical students were registered in Paris, but now there are 511, and it is anticipated that 800 will want to be registered in 1932. At Bucharest, on the other hand, the number of medical students has been limited to 150. If, as has been suggested with some show of plausibility, the countries which limit the number of entries to their own medical schools keep their most promising students at home and let the rest go abroad, then France may be justified in complaining not only of the quantity but also of the quality of her guests.

THE LÜBECK TRIAL.

(FROM OUR BERLIN CORRESPONDENT.)

(*Continued from p. 928.*)

IT is now evident that counsel for Dr. Altstädt and Dr. Klotz are out to make it appear that Dr. Deycke did not prepare the Calmette remedy according to its inventor's instructions, and that his laboratory was not in a satisfactory condition. If that could be proved their clients who had recommended the introduction of the B C G would not be guilty. Counsel for Dr. Deycke are trying to show that the original preparation became virulent without any fault on Dr. Deycke's part, and that the disaster was due to an accident which could not have been forseen.

In concluding his examination Dr. Altstädt was asked by the public prosecutor whether he knew that the B C G was cultivated in Lübeck on an albuminous medium, instead of the medium prescribed by Prof. Calmette, so that the stronger medium might have made the bacilli virulent. Dr. Altstädt replied that the compound used in Lübeck had possibly become dangerous by adulteration.

Prof. Deycke was then examined. He stated that he had worked under Koch during the cholera epidemic in Hamburg in 1893, and the German Government had sent him to study leprosy in Turkey, and later in Guiana, where he had detected a hyphomycete in leprous patients. Working with Dr. Much he had isolated an antituberculous antigen known by their names. In 1913 he was appointed head physician to the Lübeck State Hospital, and had there instituted a laboratory where, for the production of this remedy, tubercle bacilli were cultivated on a large scale. He was of opinion that dead bacilli should be used for therapeutic purposes, and living bacilli for immunisation. Dr. Schmincke, for the prosecution, asked Prof. Deycke whether he really thought that the infection of a person with tubercle bacilli was sufficient to immunise him against tuberculosis. Counsel for Prof. Deycke protested against the question as absolutely unscientific. Counsel for the parents thereupon remarked that Prof. Deycke had not answered a plain question. On the following day Prof. Deycke rose to declare that he had committed a scientific error in administering the B C G, and asked for indulgence from the parents because he had devoted his life to the care of the tuberculous. If anyone was guilty, it was himself alone, and no reproach should be made to Dr. Altstädt, Prof. Klotz, or Nurse Schütze who had worked under him for 17 years without an error. He declared he had come to the conclusion that the B C G had become spontaneously virulent, but that any spoiling or compounding of the B C G with virulent bacilli was out of question. Counsel for the parents said that Prof. Deycke had put forward that theory to excuse the condition of his laboratory which, according to a report of Prof. Lange (of the German Health Office) was far from satisfactory. Prof. Lange himself then gave evidence to the effect that in inspecting the laboratory after the disaster he had found that a separation of the B C G from other tubercle bacilli was not completely carried through. He had found a flask containing human tubercle bacilli in the anteroom of the laboratory.

Prof. Klotz (head of the Lübeck Children's Hospital), the third plaintiff, said that together with Dr. Deycke and Dr. Altstädt, he had recommended to the Lübeck authorities the administration of B C G, after a thorough study of the question had convinced him that it was absolutely innocuous. When the first victims were sent to his hospital by Lübeck practitioners under various diagnoses and when after the post-mortem examination of the first child tuberculosis was found, neither he nor Prof. Deycke, whom he had informed, believed that the child's death was due to the B C G, as the child came of tuberculous parents. Asked by the presiding judge what measures were taken when the first cases of infection had become known, Dr. Klotz answered that in fact nothing could reasonably be done after it had become obvious that the children had been infected by living bacilli. Sensation was then caused by Prof. Deycke's counsel rising to report that a similar disaster had happened in Pernik (Bulgaria), where, after the use of the B C G on 280 children, 75 had died and 111 had become seriously ill. He applied to the court for the Bulgarian medical man who had stated these facts to be summoned to give evidence either in person or on commission. The judge said the court would consider the suggestion later if necessary. On the following day counsel for the parents stated that he had telephoned to Paris and to Bulgaria, and had been informed by the Pasteur Institute and by the Bulgarian Ministry of Health that nothing was known in those quarters of the facts alleged by Dr. Deycke's advocate.

The hearing is continuing.

A PICTORIAL CHILDREN'S AMBULANCE.—To allay the apprehensions of children being taken to hospital, the Manchester Children's Hospital has altered the appearance of its ambulance. Hitherto it has been painted in dark hues, but it has now been repainted white, and modern nursery favourites are represented in bright blue.

LONDON MEDICAL EXHIBITION.

THE annual London exhibition of drugs and surgical appliances was held in the Royal Horticultural Society's Hall, Westminster, from Oct. 19th–23rd. Despite the trade depression, it was well attended and business seemed to be brisk. It is impossible to do justice to the very varied display of new and well-tried products, all of them of interest to practitioners, but the following account will serve to introduce a few of the innovations and to remind readers of old friends.

Drugs and Pharmaceutical Preparations.

(90–91) ALLEN AND HANBURY'S, LTD. (Bethnal-green, E.), drew special attention to Eucortone, a suprarenal cortex extract which has proved as successful, they say, in Addison's disease as insulin has in diabetic coma; Eulaxase, a combination of biliary and intestinal secretions with agar-agar and *B. acidophilus*, enclosed in a special coating of activated charcoal; Kapsol vitamin E (wheat germ oil), for the treatment of sterility and habitual abortion; and vitamin glucose C.D., a pure powdered medicinal glucose containing a prophylactic complement of vitamins C and D.—(116) The ANGLO-FRENCH DRUG CO. (238A, Gray's Inn-road, W.C.) had a special display of Bacte-phages prepared under the control of Prof. d'Herelle. They also pointed out Bivatol, a liposoluble bismuth in 2 c.cm. ampoules for spirochætal infections; and Hypotensyl, the active principles of viscum (gui) with gland extracts, for the treatment of conditions associated with high blood pressure.—(7) ARMOUR AND CO., LTD. (St. Martin's-le-Grand, E.C.), had their usual display of Glanoid gland preparations and beef extracts, specially drawing attention to fluid extracts of liver; a 40 per cent. spleen solution for eczema and urticaria; and sterile catgut ligatures.—(44) BAYER PRODUCTS, LTD. (19, St. Dunstan's-hill, E.C.), selected for special attention from among their products Lacarnol, a nucleosid extract for dilating the coronary arteries; Prolan, an anterior pituitary hormone; and Novalgin, a pyrazolon derivative for rheumatism. They also showed the Behring Venule, their ingenious automatic aspirating syringe for the collection of body fluids, now being used for the Bendien test.—(110) C. L. BENCARD, LTD. (184, Wardour-street, W.), presented Exhepa liver extract in powder form prepared from fresh liver only and in ampoules for hypodermic injection; also Hepa-Simplex, a special liver extract for secondary anæmia only. These two products are manufactured by the Danish Therapeutic Co., Ltd., Copenhagen. Leo Gastrosic desiccated hog's stomach tissue, and Leo Sulfosin are manufactured by the Leo Chemical Works, Copenhagen.—(5) BENGUE AND CO., LTD. (24, Fitzroy-street, W.), in addition to their well-known balsam, ethyl chloride, Forxol, Opobyl, and Pulmo Bailly, showed Passiorine, an extract of passion flower, for nervous disorders.—(87) BISODOL, LTD. (12, Chenies-street, W.C.), showed their well-known antacid and digestive.—(148) BOOTS PURE DRUG CO., LTD. (Nottingham), picked out from their many products Amyl Meta Cresol, an antiseptic with a Rideal Walker coefficient of about 280, issued in capsules, in a solution for dental work, and also in glycerin of thymol pastilles; antipneumococcus Serum (Lederle); insulin; liver extract; and the specific products Bismostab and Chloramine-T.—(162) BRISTOL-MYERS CO. (112, Cheapside, E.C.) needed no introduction for Sal Hepatica, Ipana Tooth Paste, and Ziratol antiseptic.—(61) BRITISH ALKALOIDS LTD. (Winchester House, E.C.) introduced the well-known T.C.P. in a new rôle: as an electrolyte for ionisation in arthritis and neuritis, and also as a cough-mixture, acting by oxygenating the blood in the lungs.—(140) BRITISH DRUG HOUSES, LTD. (Graham-street, City-road, N.), showed their many familiar products, particularly Livogen, a combination of liquid extract of liver with vitamins B_1 and B_2 and hæmoglobin; Ergodex, a standard and stable preparation of ergot; and Avoleum, a new standardised vitamin A concentrate; they also demonstrated the apparatus by which their vitamin products are standardised.—(164) BRITISH ORGANO-THERAPY CO., LTD. (22, Golden-square, W.), had a wide range of glandular products as capsules (Opocaps) or ampoules for injection (Opojex), notably prostatic extract, ovarian residue Opojex for midwifery; Evatmine for asthma, hay-fever, and urticaria; and Splenosol, a hog-spleen extract for eczema and urticaria.—(114) BURROUGHS WELLCOME AND CO. (Snow Hill Buildings, E.C.) had several new products since last year, including Barolac, a barium sulphate suspension for use in radiographic examination of the alimentary tract; Hypoloid sodium morrhuate, a sclerosing agent stated to minimise the risk of injection ulcer; and tabloid Carotene. They also showed Diginutin, a physiologically standardised digitalis preparation; and Epinalin, for injection of adrenalin and ephedrine. Some interesting stereoscopic transparencies illustrated the technique of hypodermic injection.—(1) G. W. CARNRICK CO. (London agents: Brooks and Warburton, Ltd., 232-240, Vauxhall Bridge-road, S.W.) displayed their well-known gland products, particularly Incretone, a liquid endrocrine tonic; and Trypsogen, in the new enterosol coating.—(13, 14, and 155) COATES AND COOPER, LTD. (94, Clerkenwell-road, E.C.), showed the products of the various foreign firms for which they are distributing agents.—THE BIOCHEMICAL LABORATORIES, LTD., Locarno, were specially showing Disulphamin, an antipyretic for colds, influenza, pneumonia, and septic infections.—KRAUSE MEDICO, München, had on view a number of products prepared by their patent desiccation process, whereby the active principles of vegetable or animal products are obtained absolutely intact.—A-S. SERPENS, Copenhagen, showed Idozan, a neutral colloidal iron solution, of which large doses can be given.—TEMMLER CHEMICAL WORKS, Berlin, showed the Speton contraceptive tablets; Spetonex, a water-soluble jelly; and Tempino pine bath charges.—GOMENOL LABORATORIES, Paris, showed the preparations of their analgesic deodorising antiseptic.—The BATTLE CREEK FOOD CO., Michigan, advocated Lacto-dextrin for changing the intestinal flora, and Psyllium Seed as an aid to inefficient colons.—REED AND CARNRICK, Jersey City, U.S.A., showed their well-known endocrine preparations, including Nephritin for renal disease; Endomin, for anæmia, Ovacoids and Testacoids; Thyracoids; Ampacoids for subcutaneous injection; and single gland products.—(11) CONTINENTAL LABORATORIES, LTD. (30, Marsham-street, S.W.), familiar as the originators of Taxol, also showed Botol, a safe preparation of bromoform, for coughs; and Veinotrope, a tablet preparation for the treatment of diseases of the veins.—(117–18) CROOKES COLLOSOLS (Gorst-road, Park Royal, N.W.) had added to their well-known colloidal preparations F.C.V.D., an iron and copper mixture with vitamin D in malt extract, and also a new Collosol iodine solution. They pointed out that their vitamin D preparations are made up for oral administration only, in accordance with the recent work of Dixon and Drummond suggesting that injection is ineffective. Their invaluable tannic acid spray for burns is now supplied in a strong metal case.—(97) J. C. ENO, LTD. (Pomeroy-street, S.E.), showed the famous fruit salt.—(150) EVANS SONS, LESCHER AND WEBB, LTD. (56, Hanover-street, Liverpool), in a large display of drugs and soaps, drew particular attention to Hepatex P.A.F. for injection treatment in pernicious anæmia, and Hepovite, a liver and vitamin preparation for oral administration; suprarenal cortex extract for Addison's disease; and Ephregel nasal jelly, for colds and hay-fever.—(25) FEEN-A-MINT PRODUCTS, LTD. (Bush House, W.C.), persuaded visitors to crunch one of their little yellow tablets of cod-liver oil with vitamins A and D. The oil of wintergreen flavouring well disguised the fish taste, and each tablet is claimed to have not less than 500 vitamin A units and 200 vitamin D units, equal to a teaspoonful of the highest grade oil.—(165) GENATOSAN, LTD. (Loughborough,

Leicester), were old friends to most visitors, with Formamint, Sanatogen, Cystopurin, detoxicated vaccines and Genaspirin; the last-named has now blushed a rosy pink to influence patients who think that a plain white tablet will do them no good.—(95, 96, 109) GLAXO LABORATORIES (56, Osnaburgh-street, N.W.) were showing Adexolin vitamin A and D capsules for infectious processes, as well as Ostelin vitamin D; a colloidal calcium suspension with vitamin D; and antivirus preparations—staphylococcus, streptococcus, and acne.—(42) C. R. HARKER, STAGG & MORGAN, LTD. (Emmott-st., E.). Petrolax.—(166) KAYLENE, LTD. (Waterloo-road, N.W.).—(59) LACTÉOL DU DR. BOUCARD (30, Rue Singer, Paris), and (75) PETROLAGAR LABORATORIES, LTD. (Braydon-road, N.), were there with their respective preparations, which are now well-tried favourites for intestinal disorders.—(121) C. J. HEWLETT AND SONS, LTD. (35–42, Charlotte-street, W.C.), showed their familiar and proved medicinal preparations, such as Hepatogen and Somnigen.—(71) The HOFFMANN LA ROCHE CHEMICAL WORKS, LTD. (51, Bowes-road, N.), had many well-tried preparations to show, and especially mentioned Sedormid sedative and hypnotic, and Larocain, a cocaine substitute for opthalmological and ear, nose, and throat work.—(45) HOWARDS AND SONS, LTD. (Ilford), had many fine chemicals on show, and drew attention to Agotan and Agotan ointment for rheumatism and allied complaints; Quinisan, a new salt for colds and influenza; Optochin hydrochloride, a specific for pneumococcic infections of the eye; and standard ether for anæsthesia.—(122) JOHNSON AND SONS (Hendon Way, N.W.) showed their various chemicals, particularly Arvitin, a true silver vitellin prepared from silver combined with the vitellinic acid of egg yolk, and also their Elixir Cascaræ Aromat, Johnson's Examarata, a sound and palatable preparation.—(49) KEEN, ROBINSON AND CO., LTD. (Norwich), were stressing the medicinal value of mustard in coughs, colds, rheumatism, febrile conditions, and insomnia.—(99) MAY AND BAKER, LTD. (Battersea, S.W.), amidst a large display of preparations, pointed out Novarsenobillon (914); Soneryl as a hypnotic and analgesic; Crisalbine, a gold preparation for tuberculosis; Opacol, for radiography of the gall-bladder, and Planocaine, a local anæsthetic.—(143) MEDICAL LABORATORIES, LTD. (40, Pall Mall), showed Clauden, a hæmostatic for injection or local application; Spuman, a medicinal foam for inflammations of the female uro-genital tract; and Semori, a foaming contraceptive.—(157) MENLEY AND JAMES, LTD. (64, Hatton-garden, E.C.), showed the popular Iodex; Eskay brand neuro-phosphates; and Pyridium, their successful urinary antiseptic.—(103) H. R. NAPP, LTD. (3 and 4, Clements Inn, W.C.), selected from among their products Anotal, a new combination of phenyloinchoninic acid with ethylurethane, intended for the treatment of rheumatism; Raminal, a mixture containing theobromine-calcium-salicylate, iron phosphates, and chlorophyll, for high blood pressure; and Kerol for the disinfection of the alimentary canal. They had a number of case-records to show the rapid improvement of cases of anæmia under their product Xorox.—(6) NORDISK INSULIN LABORATORIUM (Copenhagen, Denmark) had a stand to introduce Danish Leo insulin, a cheap and reliable form of insulin containing no preservative.—(37) OPPENHEIMER, SON AND CO., LTD. (Handforth Laboratories, Clapham-road, S.W.), reminded visitors of their many valuable preparations, including Bi-Palatinoids, Cocoids, Pulverettes, and Dimol preparations.—(73) OXO, LTD. (Thames House, Queen-street-place, E.C.4), in addition to their various gland products, presented Liveroid, a palatable form of liver therapy, and Oxoid brand vitamin A in capsules for infective processes.—(39) PAINES AND BYRNE, LTD., showed medicinal substances of animal origin, particularly Ovacliman, a specific for the menopause containing calcium, bromine, theobromine, and papaverine; and Cortigen, a preparation of suprarenal for Addison's disease.—(64) PARKE, DAVIS AND CO. (50–54, Beak-street, W.), pointed out Mycozol, an ointment containing chloretone, salicylic acid, mercury salicylate, and aromatics for epidermomycosis; Felton's antipneumococcic serum; Theelin—the crystalline ovarian follicular hormone; Ventriculin—dried gastric tissue for anæmia; and anticatarrhal vaccine.—(75) PETROLAGAR LABORATORIES, LTD. (Braydon-road, N.), emphasised the value of Neobovinine 20, a compound of liver extract and beef hæmoglobin for blood regeneration.—(63) The PINEOLEUM CO. (Distributing Agents: Chesebrough Manufacturing Co., Victoria-road, N.W.), had an improved nebuliser for their familiar inhalant, and recommended the addition of ephedrine for asthma.—(58) RESEARCH PRODUCTS, LTD. (12–13, Henrietta-street, W.C.), had on view a wide range of biological, medical, and laboratory products.—(84) PHARMACEUTICAL CORPORATION, LTD. (39, Aldersgate-street, E.C.), exhibited their Novutox self-sterilising local anaesthetic, which, they claim, can safely be injected into infected tissues.—(149) ROBERTS, COLE AND CO., LTD. (37–38, Margaret-street, W.), showed Barmsule brand capsules of brewers' yeast, enclosed in a way which keeps it "live" for long periods without contamination.—(147) SANDOZ CHEMICAL WORKS, LTD. (5, Wigmore-street, W.), stressed Panthesine Balm for all rheumatic, pruritic, and local painful conditions; in addition to their well-known Felamine; Femergin; Ipecopan; Lobeline; and Optalidon analgesic tablets.—(27) SAVORY AND MOORE, incorporating John Bell and Croyden (143, New Bond-street, W.), had a number of new preparations on view, notably Urotropal, an effervescent granular compound for rheumatism, gravel, arthritis, and cystitis; antigermal brand antiseptic, for preparing antiseptic lotions, and senna pod pastilles.—(47) SCHERING, LTD. (3, Lloyd's-avenue, E.C.), showed a selection of fine medicinal preparations, including Neotropin, a urinary antiseptic and general internal disinfectant, active in either acid or alkaline media; Progynon, a concentrated female sexual hormone, in dragées and ampoules; Uroselectan B, the contrast agent for pyelography; and their well-known Veramon, Medinal, and Atophan.—(125) E. H. SPICER AND CO., LTD. (Endocrines, Ltd., Watford, Herts), had on view Nembutal 844, the new barbiturate preoperative sedative, also valuable in obstetric work; as well as Edwenil, a polyvalent antibacterial agent; and Globenil, which is making progress in the treatment of inoperable cancer cases.—(46) WHIFFEN AND SONS, LTD. (Carnwath-road, S.W.), showed a full range of specialties, including the Staniform antiseptic preparations, which combine tin and a methyl radicle with iodine; Gelozone, a new health food made from Carragheen seaweed gelatine; Euphyllin, a diuretic and vasodilator; Emetine, of which they are the sole manufacturers; and Salicin, of which they are the only British manufacturers.—(138) CHAS. ZIMMERMANN AND CO. (CHEMICALS, LTD.), (9–10, St. Mary-at-Hill, E.C.), showed a number of interesting preparations, including Ultraferran colloidal iron tablets; Chinosol, a water-soluble antiseptic, particularly useful as a mouth-wash; and Asthmolysin (Weiss), a standardised suprarenal pituitary compound for asthma.

Foods and Drinks.

Many well-known and popular food-stuffs were on view. (146) ARKINA EXPORT CO. (72–73, Dunster House, Mark-lane, E.C.), Arkina Natural mineral water from the spa near Lausanne.—(31) BANTAM PRODUCTS, LTD. (9, Queen Victoria-street, E.C.), Bantam coffee.—(93) BOVRIL, LTD. (148–166, Old-street, E.C.).—(72) BRAND AND CO., LTD. (Mayfair Works, Vauxhall, S.W.), essences, turtle soup, calf's foot jelly, and especially Peptamalt, a new highly concentrated predigested liquid food prepared from beef and barley malt.—(100) CADBURY BROS., LTD. (Bournville), cocoa and chocolate.—(49) KEEN, ROBINSON AND CO., LTD. (Norwich), emphasising the vitamin content of Almata.—(29) FRANK COOPER, LTD. (Victoria Works, Oxford), the Oxford marmalade, horse-radish cream, mint

jelly, and other preserves.—(77–79) COW AND GATE, LTD. (Guildford, Surrey), chocolate milk; Sprulac, a new milk-food for sprue; and Peptalac, a peptonised and pancreatised food, prepared under precise conditions in the laboratory, and made in a minute in hot water.—(115) ENERGEN FOODS, CO., LTD. (Willesden, N.W.), diabetic and obesity preparations.—(70) FASSETT AND JOHNSON, LTD. (St. John's Gate Buildings, 86, Clerkenwell-road, E.C.), introducing Eatan, a palatable mixture of amino-acids obtained by an absolute reduction of animal products.—(8) WILLIAM GAYMER AND SONS, LTD. (Attleborough), ciders and perry.—(95) GLAXO LABORATORIES (56, Osnaburgh-street, N.W.).—(163) GRANOSE FOODS, LTD. (Watford), gluten bread and biscuits, and the Granose wheat biscuits.—(108) HOVIS, LTD. (London).—(112) INGRAM AND ROYLE, LTD. (45, Belvedere-road, S.E.), their usual wide range of imported mineral waters.—(68, 69) NESTLÉ AND ANGLO-SWISS CONDENSED MILK CO. (6–8, Eastcheap, E.C.), specially stressed Lactogen, a balanced infant food.—(17) ORYO, LTD. (91–93, Bishopsgate, E.C.), a rye crispbread.—(73) OXO, LTD. (Thames House, Queen-street-place, E.C.).—(136) SISTER LAURA'S INFANT AND INVALID FOOD CO., LTD. (Springfield Works, Bishopbriggs, Glasgow).—(126–130) TRUFOOD, LTD. (Wrenbury, Cheshire), humanised and full cream Trufood and Secway.—(123) VIROL, LTD. (Hanger-lane, Ealing, W.).—(80) VITALIA, LTD. (11, Springfield, Upper Clapton, E.), meat juice.—(85) VITAMINS, LTD. (23, Upper Mall, W.), Bemax vitamin B and Bemax chocolate.—(89) VITMAR, LTD. (Southfields, S.W.), Vitmar, Melovol, and Cibrons.

Books.

(21, 22) MESSRS. BAILLIÈRE, TINDALL AND COX, representing also a number of other firms, drew special attention to "Baillière's Synthetic Anatomy," now complete except for Part X. (The Brain); Strümpell and Seyfarth's "A Practice of Medicine"; and Frazer's "Manual of Embryology."—(20) WILLIAM HEINEMANN, LTD. (99, Great Russell-street, W.C.), pointed out Bendien's "Specific Changes in the Blood Serum," McDonagh's "Nature of Diseases," (Section 1 of Part III.), Van de Velde's "Ideal Marriage," "Sex Hostility in Marriage," and "Fertility and Sterility in Marriage"; and Cecil A. Joll's forthcoming "Diseases of the Thyroid Gland."—(33, 40, 41) H. K. LEWIS AND CO., LTD. (136 and 140, Gower-street, W.C.1), had on view "Bendien's Diagnostic Methods for Cancer," by A. A. Miller; "Rheumatoid Arthritis and Its Treatment," by Vincent Coates and J. L. Delicati; "A Guide to Human Parasitology" by D. B. Blacklock and T. Southwell; and "Lectures on Psychiatry" by E. D. Wiersma; they also had a range of medical stationery and equipment, particularly a roll-top cabinet for panel records.—(98) JOHN WRIGHT AND SONS, LTD. (Bristol), selected for special mention "Index of Treatment" (Hutchison and Sherren); "Physical Signs in Clinical Surgery" (Bailey); "Emergency Surgery" (Bailey); "The Photo-Activity and Therapy of the Tungsten-Titanium Arc" (Burdon-Cooper and Roberts); "The Cardiac Cycle" (Sainsbury); "Pye's Surgical Handicraft" and "Index of Prognosis" (Short).

Miscellaneous.

(66) F. C. CALVERT AND CO., LTD. (Gibbon-street, Bradford, Manchester), showed their well-known range of carbolic soaps, dentifrices, and ointments.—(156A) THE FOOD EDUCATION SOCIETY (29, Gordon-square, W.C.) had their customary display of interesting literature, including "Children's Diet," "Vegetables—Their Use, Abuse, and Neglect," and "The Truth about Fat."—(9) The GAS LIGHT AND COKE CO. (Horseferry-road, S.W.) showed their latest improvements in heating and cooling; the Panella gas fire for consulting rooms; the Indusa panel wall heater for larger rooms, which has the great advantage of bringing in fresh air from the outside and warming it; the gas incinerator; and the gas refrigerator.—(94) The INHALING DRUG AND APPARATUS CO., LTD. (Windsor House, Victoria-street, S.W.), showed how medicines of all kinds can be administered through the lungs.—(53) The JAEGER CO., LTD. (95, Milton-street, E.C.), demonstrated again the cosiness of their underwear and rugs.—(67) KOLYNOS INCORPORATED (Chenies-street, W.C.) demonstrated their gritless dental cream, denture powder and mouth-wash.—(19) The MEDICAL AGENCY (15, York Buildings, Adelphi, W.C.) claimed to be the only agency giving day and night service.—(161) The MEDICAL SICKNESS, ANNUITY AND LIFE ASSURANCE SOCIETY, LTD. (300, High Holborn, W.C.), again appeared under its slogan "Your Own Profession's Society."—(142) The NATIONAL OPHTHALMIC TREATMENT BOARD (1, High-street, Marylebone, W.) had a stand to explain its national eye service, which ensures examination by an ophthalmic surgeon and the provision of glasses at fixed inclusive charges, ranging from 15*s.* to 33*s.*—(32) The PEPSODENT CO. (8, India-street, E.C.) displayed their popular dentifrice; and (156) The *Practitioner* (6–8, Bouverie-street, Fleet-street, E.C.) showed its current issue, containing a symposium on disease of the blood, and its various useful special numbers.

THE COMPLETE DOCTOR.

THE session was opened in the Royal Victoria Hospital, Belfast, on Oct. 6th, when Prof. Andrew Fullerton took the chair, and Dr. R. M. Beath delivered the annual oration.

What advice, asked Dr. Beath, is most needed by men setting foot in the profession of medicine? "Work, and, above all, work," many would say, but something more is called for to make the complete man. What do we feel most lacking in ourselves and in many whom we meet? Is it not width of learning and of outlook—not in professional matters, but in things in general—a wider interest and acquaintance with other branches of learning? Michelangelo said: "There are sciences which demand the whole of a man, without leaving the least portion of his spirit free for other distractions." Our danger lies in medicine being one of these sciences. Professional work of any sort is of necessity narrowing. Constant association with others engaged in similar work and the required intensity of study cramp the outlook and limit the view. The great men of the medical world of all ages have hewn a way for themselves out of the rut, and have found time to acquire that wider learning which gives them the stamp of educated men, and raises their profession above the dead level of a trade. There is a sort of education, as the philosophers of Greece taught 2000 years ago, which should be acquired, not because it is useful or necessary, but because it is liberal and noble, and affords intellectual enjoyment for leisure hours.

How are we to set about this quest? First, we can learn much by closer association with our fellows, and more especially with those engaged in different work from ourselves. The hermit of student days rarely becomes a "good mixer" in later life. Secondly, we may read. The reading of novels has its value, but we should aim at something more. At least half an hour should be taken out of a solid busy day for good and disinterested reading; and he personally had found profit in studying the lives of some of the world figures in medicine and in the study of the classics. "Many of the ideas we think new," said Dr. Beath, "we shall find strangely old." The third method is travel—in many ways the most valuable in freeing the medical man from professional rust and parochial outlook. The student and medical graduate should see as much as possible of other countries, different scenery, different modes of life, habits, and customs, different art and architecture, and also of medical work in other places.

LEEDS PUBLIC DISPENSARY.—Last week Dr. A. Hawkyard, Lord Mayor of Leeds, opened a new children's ward at the Leeds Public Dispensary. There are ten cots and six beds, and the cost has been £2500.

OBITUARY

SIR MARRIOTT COOKE, K.B.E., M.B. Lond.

Sir Marriott Cooke, whose death occurred in London on Oct. 17th, was nearing his 80th birthday. Public service for sufferers from mental disorder extending over a period of 56 years entitles him to be regarded as a main link between mid-Victorian psychiatry and present-day ideals as embodied in the Mental Treatment Act.

Edward Marriott Cooke was elder child of Henry Edward Cooke of Harrow-on-the-Hill. He was educated privately at Southampton and at Cholmeley's School, Highgate, entering King's College as a resident student and completing his medical work at King's College Hospital. He held the post of resident accoucheur while reading for the primary Fellowship and the final M.B. Lond., and it was rather for the opportunity of prolonged study than because he was specially drawn to psychiatry that he went in 1873 as assistant to the Worcester Mental Hospital at Powick, where his chief was Dr. James Sherlock, a man of high medical and administrative attainment. He joined the Medico-Psychological Association at a time when Crichton Browne was president, Maudsley and Clouston the editors of its journal, and in this atmosphere his interest in the welfare of the insane awoke. Powick then numbered 669 patients, and there was not a single attendant or nurse on continuous duty during the night, a situation which impressed Cooke when as deputy he was called upon to act as superintendent during the illness of his chief. He had occasion too to visit other mental hospitals to collect information on behalf of his committee. His stay at Powick was not continuous, for in 1877, on the retirement of Dr. J. W. Burman, he was appointed to the charge of the Wilts County Mental Hospital at Devizes, where he stayed for four years, and was instrumental in setting apart a ward for sick and infirm cases under the charge of competent nurses. Returning to Powick in 1881, on Dr. Sherlock's death, he was occupied for 17 years in thinking out and effecting improvements in a hospital whose accommodation grew from 770 to 1100 beds during his term of service. Here again he was effective in separating acute, intelligent, and curable patients from the residuum of chronic mental invalids, and he saw the hospital's death-rate reduced nearly to six per cent. He felt strongly about the value of occupational therapy and claimed that fully seven per cent. of his patients were usefully employed in one way or another. During his time many cottages were built on the estate for married male members of the staff. His services were recognised in a signal way, for the committee of visitors on their own initiative decided to increase his salary by £300.

SIR MARRIOTT COOKE.

[*Photograph by H. Van der Weyde.*

It was in January, 1898, on the death of Dr. J. A. Wallis, that Cooke joined the Lunacy Commission when Earl Waldegrave was chairman. He was not an innovator; he preferred to abide by well-tried measures, and his work is merged in the Board's corporate activities. Benevolently sceptical of new suggestions, he was always ready to encourage their trial. As Commissioner he read every letter addressed to him from patients, and on his visits of inspection he gave them full opportunity to ventilate grievances. When war came in 1914 and Cooke was 62 years old, his services were lent whole-time to the War Office, and with one of his colleagues he developed a scheme under which 24 hospitals with 31,000 beds were placed at the disposal of sick and wounded soldiers, of whom some 480,000 were treated there; that is, one-sixth of the total number from all fronts. For a while he acted as medical referee at Scotland Yard in doubtful internment cases. From 1916 to 1918 he was chairman of the Board during the absence of Sir William Byrne in Ireland, being created K.B.E. at the end of this period. On his resignation in 1921 he was appointed an honorary Commissioner, continuing to attend meetings of the Board right up to the coming into force of the Mental Treatment Act.

Little record of Cooke's work exists on paper. Although a regular reader of medical journals, writing was always an effort to him. He absorbed facts slowly and deliberately, but once absorbed he held them and their underlying principles with tenacity. His official writings are conspicuous for lucidity and logical coherence, with a total absence of exaggeration. He had a commanding presence, described by his friend and colleague, Sir Hubert Bond, in the following words: "Erect and of somewhat military bearing and carriage, he looked more than his real height; dark, nearly black hair; healthy, rather swarthy complexion; strongly marked eyebrows, piercingly dark eyes which could and did at times give a flash which was a warning that it might ill betide one who would venture on liberties with him; attractive rich voice—he was obviously one upon whom responsibility would sit well."

Sir Marriott Cooke married in 1879 Mary Anne Henrietta Cecil, fourth daughter of Sir George Brooke-Pechell, Bt., of Alton House, an accomplished pianist and singer, whose gentleness and charm helped to mitigate the asperities of asylum life. Lady Cooke died in 1927 leaving no issue.

RICHARD WHYTOCK LESLIE, M.D., LL.D. R.U.I.

Dr. R. W. Leslie, who died on Sept. 22nd in Belfast after a short illness, was born in 1862 in County Tyrone, a son of the manse, his father being the Rev. J. K. Leslie, of Cookstown. He was educated at the Royal School, Raphoe, and took the early part of his medical course at Queen's College, Galway, and the latter part at Queen's College, Belfast, graduating as M.D. in the old Royal University of Ireland in 1887. Settling down in Belfast he quickly took an outstanding position in the medical profession,

and established a truly surprising record of social service in branches of public life. For many years he was physician to the Ulster Hospital for Children and Women. On the establishment in 1894 of the Campbell College he was elected physician to this large boarding-school, and here he gained the affection and regard of successive generations of boys. In 1909 he was vice-president of the Section of Diseases of Children at the British Medical Association meeting, and in 1919 was chairman of the Belfast Division. Having given much time and interest to the affairs of the B.M.A., he was pleased at being elected to the Council of the Association in 1923, and attended the meetings of this body in London with regularity. In 1912 he was chosen president of the Ulster Medical Society.

Intensely interested in educational affairs he obtained a practical outlet for his views as a member of the Senate of the Royal University of Ireland, and on its dissolution he was made an honorary LL.D. He was later appointed a senator of the Queen's University of Belfast, where he took an active interest in every phase of university life and gave his services on many committees. Yet another body with which he was actively associated was the Order of St. John of Jerusalem. For many years he conducted ambulance classes in the Campbell College and in his own part of Belfast, and for his services to the Order, particularly during the war, he was created a Knight of Grace and an Honorary Associate. Dr. Leslie also took a keen interest in the Masonic Order, in which he held high office, and he was one of the founders and first masters of the University Lodge.

"Richard Leslie," writes a medical friend, "was a man of great charm, broad views, and wide culture, a polished speaker and a wise counsellor, a noted mediator and peacemaker among his brethren, a skilful physician beloved by patients and colleagues."

JOHN ROBERT DAVISON, M.D. R.U.I.

Dr. J. R. Davison died at his home in Belfast on Sept. 17th in his seventy-first year. He was born in Leeds and educated at Toleraine Academical Institution and Queen's College, Belfast, graduating in arts in 1880 and as M.D. in 1887. As a young man he represented Ireland on eight occasions in association football; later in life he took up bowls, and again became an international. One of the most familiar figures in Belfast, he rose in medicine, as in sport, to a leading position among the practitioners of the city. He was a man of much ability, and held the honour of his profession in high regard.

THE death of Mrs. MARGARET LAMONT, M.D. (née Traill Christie), at Port Said last August, brought to an end a life of very varied experience. After a successful student career at Bedford College and the London (Royal Free Hospital) School of Medicine for Women, she graduated in 1895. Next year she went to India on special plague duty and later took charge of the Dufferin Hospital, at Calcutta, where she subsequently married. After further wanderings Dr. Lamont settled in Shanghai and recently her home was in Durban where her two married daughters are now living. The subject of medical missions always occupied a chief place in her interests, and it was when travelling for this cause that she was overtaken by her last illness.

MEDICAL GRADUATES FOR PARLIAMENT.

TWENTY-THREE medical men and one medical woman have faced a contested election this week. We regret the inadvertent omission from the list in our last issue of the name of Dr. G. V. Worthington, standing as a National Liberal for Gloucester (Forest of Dean). Following is a list of candidates, successful and unsuccessful, so far as the results were known at the time of going to press. As already announced, Prof. T. Sinclair (Queen's University, Belfast) and Dr. J. H. Morris-Jones, Denbigh (Denbigh), were elected without opposition. We must defer until our next issue the usual voting analysis.

ELECTED.

Name.	Constituency.	Party.
Dr. J. Douglas Cooke	Hammersmith (South)	C.
†Dr. Walter E. Elliot	Glasgow (Kelvingrove)	C.
†Dr. F. E. Fremantle	Herts (St. Albans)	C.
†Mr. H. C. Haslam	Lincolnshire (Horncastle)	C.
Dr. G. B. Hillman	Wakefield	C.
Dr. A. B. Howitt	Reading	C.
†Dr. J. Hunter	Dumfriesshire	L.
‡Sir Henry Jackson	Wandsworth (Central)	C.
Dr. J. W. Leech	Newcastle-on-Tyne (W.)	C.
†Dr. J. H. Morris-Jones	Denbigh (Denbigh)	Nat. L.
Dr. W. J. O'Donovan	Stepney (Mile End)	C.
†Dr. Alfred Salter	Bermondsey (West)	Lab.
†Prof. T. Sinclair	Queen's Univ., Belfast	C.
†Dr. J. H. Williams	Carmarthen (Llanelly)	Lab.
Dr. G. V. Worthington	Gloucester (Forest of Dean)	Nat. L.

NOT ELECTED.

†Rt. Hon. C. Addison	Wilts (Swindon)	Lab.
Dr. F. G. Bushnell	Somerset (Taunton)	Lab.
Dr. C. R. Cooke-Taylor	Camberwell (Dulwich)	L.
†Dr. R. Forgan	Renfrew (West)	N.P.
‡Dr. L. Haden Guest	Bucks (Wycombe)	Lab.
†Mr. Somerville Hastings	Reading	Lab.
Dr. R. A. Lyster	Hants (Winchester)	Lab.
Miss Esther Rickards	Paddington (North)	Lab.
†Dr. Drummond Shiels	Edinburgh (East)	Lab.
Dr. Russell Thomas	Ilford	L.

The sign † indicates membership of the last House of Commons. The sign ‡ of any previous Parliament.

THE COLYER PRIZE.

THE first award of this prize will be made in July, 1932. It was founded by the Royal Society of Medicine in June, 1926, to commemorate the 25 years' service of Sir Frank Colyer as honorary curator of the odontological museum. The accumulated income of this fund may be used every third year for the purpose of awarding a prize for the best original work in dental science completed, during the previous five years, by a dental surgeon educated at any duly recognised dental school in Great Britain or Northern Ireland, who has not been qualified to practise more than five years at the date of the award. The prize committee is composed of the president of the society, the curator of the odontological museum, and two representatives to be appointed by the council of the Section of Odontology. The committee have power to withhold the prize if they consider that no work has been submitted of sufficient merit to justify its award, and to arrange instead for a lecture, or lectures, upon some subject related to the odontological museum, according the lecturer an honorarium from the fund. Applications from candidates for the first award should be submitted to the prize committee (1, Wimpole-street, London, W.1) not later than March 31st, 1932, together with a general account of researches, completed and in progress.

MEDICAL NEWS

University of Cambridge.

On Oct. 23rd the following degrees were conferred:—

M.D.—G. P. Chandler, J. T. Irving, F. G. Spear, and C. E. Kellett.

M.B. & B.Chir.—O. J. C. Cotton, D. B. McGavin, J. H. Richmond, C. P. K. Toland, A. S. Hall, J. K. Willson-Pepper, H. E. W. Roberton, and T. G. Reah.

M.B.—F. G. Winterton.

B.Chir.—T. C. Stamp and D. R. Goodfellow.

University of London.

At a meeting of the Senate on Oct. 21st, it was announced that, owing to ill-health, Lord Beauchamp, had resigned the Chancellorship of the University. The Senate recorded their deep regret that he had found it necessary to take this step and their high appreciation of the services which he had rendered to the University during his tenure of office.

Dr. R. J. V. Pulvertaft was appointed to a University Readership in Pathology tenable at Westminster Hospital Medical School. Dr. Pulvertaft is at present pathologist to the medical and surgical unit at St. Thomas's Hospital.

The title of Reader in Physiology was conferred on Mrs. Nora Edkins, D.Sc., in respect of the post held by her at Bedford College.

It is announced that Lord Moynihan has accepted nomination by the Council of the University of London Graduates' Association for the office of Chancellor.

University of Edinburgh.

On Oct. 24th the following diplomas were conferred:—

Diploma in Psychiatry.—*W. H. Gillespie.

Diploma in Public Health.—*P. C. Datta, Jessie Griffin, L. J. Howie, D. F. Mackenzie, Margaret I. M'Kinlay, Jessie C. B. Sym, and *B. O. Wilkin.

* In absentia.

Royal College of Surgeons of Edinburgh.

At the annual meeting of the College on Oct. 21st, the following office-bearers were elected for the ensuing year: President: Mr. J. W. Dowden; Vice-President: Dr. J. H. Ferguson; Secretary and Treasurer: Mr. J. W. Struthers. Council: Mr. Henry Wade, Mr. W. J. Stuart, Dr. A. H. H. Sinclair, Mr. G. L. Chiene, Dr. J. S. Fraser, and Mr. J. M. Graham. Representative on the General Medical Council: Mr. Alexander Miles. Convener of Museum Committee: Dr. A. Logan Turner. Librarian: Mr. D. M. Greig.

At a meeting of the College on Oct. 20th, Dr. James Haig Ferguson, the President, in the chair, the following 34 successful candidates (out of 98 entered) who passed the requisite examinations between July 9th and 18th were admitted to the Fellowship:—

Robert Lorimer Beveridge, M.B. Edin.; Raymond Edward Bridge, M.B. Otago; Freeman Albert Brockenshire, M.B. Toronto; Julius Brown, M.B. Edin.; Arnold Leslie Bryant, M.B. Sydney; George Gordon Campbell, M.B. Edin.; Edward Charles Chitty, M.B. Aberd.; Joseph Crowther, M.R.C.S. Eng.; Alexander Dickson, M.B. Edin.; Frank Gerrard D'Souza, M.B. Bomb.; Gordon Bruce Flint, M.D. Edin.; Gwyneth Griffith, M.D. Liverp.; John Gordon Harrower, M.B. Glasg.; Arthur Wesley Stanley Hay, M.D. Manitoba, Canada; Herbert Bruce Hough, M.B. Toronto; Charles Arundel Hutchinson, M.R.C.S. Eng.; Govind Vasudev Joglekar, M.B. Bomb.; Henry Andrew Kidd, M.R.C.S. Eng.; Eric Walter Kyle, M.B. Melb.; Robert Baird McClure, M.B. Toronto; William McElmoyle, M.D. Manitoba; John Archibald McLauchlan, M.B. Edin.; George Hay Marshall, M.B. Edin.; D'Arcy Harper Moir, M.B. New Zeal.; Richard Edward Montagu Pilcher, M.R.C.S. Eng.; Redvers William Scanlon, M.R.C.S. Eng.; Rama Shanker, M.B. Punjab; Angus Dalrymple Smith, M.B. Edin.; Algar Gerald Sweetapple, M.B. Sydney; Geoffrey Gerald Cheetham Taylor, M.B. Durh.; Vivian Johnson Morcom Taylor, M.B. Liverp.; Mukund Balvantrai Thakore, M.B. Bomb.; John Vaughan-Bradley, M.B. Camb.; and Albert Willard McCollum White, M.B. Toronto.

Ladies' Medical Golfing Society.

The Autumn Meeting was held at Northwood on Oct. 23rd. The results were as follows:—Cecil Leitch Cup (given in aid of the National Playing Fields Association) best net score: Miss B. Roberts Harris, who also won the scratch prize and the 1st division handicap with a score of 82 − 6 = 76. Captain's Prize: Best aggregate score spring and autumn meetings, Miss A. Bristow, 155. 1st Div. Handicap: 2nd prize, Miss A. Bristow, 91 − 12 = 79. 2nd Div. Handicap: Mrs. Oldershaw, after a tie with Mrs. Palmer and Miss S. Dudgeon. 3rd Div. Handicap: 1st, Mrs. Duncan Fitzwilliams; 2nd, Miss Phillips, after a tie with Mrs. Eddomen. Greensomes *v.* Bogey: 1st, Miss Dix Perkins and Miss B. Roberts Harris, 2 up; 2nd, Mrs. Gordon Holmes and Mrs. Russell-Smith, tied with Miss S. Dudgeon and Miss A. Bristow, all square.

Pharmaceutical Society of Great Britain.

At a meeting to be held in the Society's House, 17, Bloomsbury-square, London, W.C., at 8.30 P.M. on Tuesday, Nov. 10th, Sir William Willcox will give an address on The Practical Relationship of Bacteriology to Pharmacy and its Influence on the Curriculum.

Royal Medico-Psychological Association.

The twelfth Maudsley lecture will be delivered by Sir Hubert Bond, a senior commissioner of the Board of Control, in the Great Hall of the British Medical Association House, Tavistock-square, London, W.C., on Tuesday, Nov. 24th, at 3 P.M. The title is, Testimonied in his own Bringings-forth. Admission without ticket.

Welsh National School of Medicine.

Prof. A. W. Sheen has been appointed the first provost of this school under the new charter by which it has become a separate school of the University of Wales. He has hitherto been dean.

Joint Tuberculosis Council.

A meeting of this council was held in London on Oct. 17th. Among other matters the question of collective research was discussed. The essentially individualistic nature of most research was emphasised, and the difficulty of persuading those able and ready to carry it out to follow lines suggested by any committee. At a luncheon subsequently given by Dr. Lissant Cox, chairman of the council, Sir George Newman said that tuberculosis provided an excellent example of a successful organisation campaign; it was the best instance he knew of successful State intervention, for the mortality of pulmonary tuberculosis had been reduced by 75 per cent. in 75 years, and deaths from non-pulmonary tuberculosis had been halved since 1918. The four pillars of the tuberculosis campaign were the general practitioner, the dispensary, the institution, and the public health service. Coöperation of all these was essential if success was to continue. The teaching of tuberculosis to students he regarded with some misgiving; we must beware of over-confidence in the hour of triumph and spare no effort to maintain all-round efficiency. Dr. Charles Porter gave some details of recent steps to attack tuberculosis in Chicago; he explained the mobile artificial pneumothorax arrangements, and the forcible hospitalisation of certain infective persons. Dr. Egbert Morland expressed a fear that tuberculosis might fade away before the arrangements to attack it were really ready.

Hospital Developments.

Members of the Royal family were busily engaged last week in activities connected with hospitals. On Tuesday the Marchioness of Cambridge opened extensions of the Richmond (Surrey) Royal Hospital which have cost £15,000. The buildings, which were dedicated by the Bishop of Kingston-on-Thames, consist of a four-floored block and include a new X ray department and a new theatre served by an electric lift. There are eight extra beds for patients needing special observation, and the facilities for pathological work have been greatly improved.—On Wednesday the Prince of Wales attended the Colchester oyster feast which this year was associated with an effort on behalf of the Essex County Hospital. In his speech the Prince made an appeal for the balance required for a new nurses' home, and the collection at the table amounted to £277.—On Thursday the Duke of York opened the first wing of the permanent buildings of the Manor House Hospital, Golders Green where the Industrial Orthopædic Society provides treatment for injured industrial workers. This is the first of a group of seven buildings, the total cost of which will be about £250,000. Six of them will contain wards and a theatre; the seventh will be the administrative block. The patients who are at present housed in temporary buildings, erected during the war, will be transferred as the new wards are ready. The wing opened on Thursday has accommodation for 46 patients. The open wards are provided with runner curtains which can be drawn at night to give each patient privacy, and a switch enables a patient to call a night-nurse, the bed being indicated by a red light. The building fund was launched in 1929 with a sum of £32; by June, 1931, it had reached £34,500.—On the same day the Duchess of York opened the new maternity department at the Radcliffe Infirmary, Oxford, which has cost £40,000, and is the gift of Sir William Morris. There are two main wards, each with 12 beds; there are also single and two-bed wards, and rooms for paying patients, with open-air balconies. Above the main wards are isolation rooms and a suite of labour wards.

Medical Diary

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY, Nov. 3rd.—5 P.M., ORTHOPÆDICS. (Cases at 4.30 P.M.) Mr. Eric I. Lloyd: Infantile Coxa Vara. Mr. T. K. Lyle: Cervical Rib. Mr. D. McCrae Aitken: Case for Diagnosis. Mr. Alan H. Todd: Madelung's Deformity with Abnormal Radio Ulna Joint. Mr. C. Lambrinudi: End Results of Foot Drop Operation. Mr. B. H. Burns: Two Cases of Spondylolisthesis. Mr. E. P. Brockman: Deformity of Wrist. Mr. Paul Bernard Roth: Severe Fracture of the Pelvis. Other cases will be shown. 8 P.M., PATHOLOGY. Laboratory Meeting at the London School of Hygiene and Tropical Medicine, Keppel-street, London, W.C. Demonstrations: J. T. Duncan: Blastomycotic Infection in Man. G. S. Wilson: Dye-containing media in the Differentiation of the Brucella Group. W. R. Wooldridge: Reducing Activities of Bacterial Cells as shown by the Methylene-blue Technique. H. M. Schwabacher: Isolation of Tubercle Bacilli from the Blood. Papers: M. E. Delafield: Changes in Blood Constituents in Response to Injection of Bacteria. R. Lovell: The Presence and Significance of Normal Agglutinins in Domestic Animals. W. W. C. Topley and J. Wilson: Immunity to Pasteurella Infection in Mice.

WEDNESDAY.—5 P.M., HISTORY OF MEDICINE. Mr. A. F. MacCallan will read a paper by Dr. Meyerhof (Cairo) on A Short History of Ophthalmia during the Egyptian Campaigns of 1798–1807. Dr. W. R. Bett for Dr. K. J. Franklin: The Work of Richard Lower (1631–1691). A Tercentenary Survey. OPHTHALMOLOGY. Members of this Section are invited to take part in the discussion. 8.30 P.M., SURGERY. Discussion: Treatment of Acute Osteomyelitis. Opener: Mr. Gwynne Williams. Followed by Mr. Eric I. Lloyd, Mr. W. H. Ogilvie, and others.

THURSDAY.—8.30 P.M., TROPICAL DISEASES AND PARASITOLOGY. Papers: Dr. P. Manson-Bahr: Amœbic Abscess of the Liver; Its Diagnosis and Treatment. A Clinical Study. Mr. T. P. Kilner: Operative Procedures in Amœbic Abscess of the Liver, based on Recent Experiences. MEDICINE AND SURGERY. Members of these Sections are specially invited to attend.

FRIDAY.—10.30 A.M., OTOLOGY. (Cases at 9.30 A.M.) Presidential Address: Mr. Norman Patterson: The Training of an Otolaryngologist. Papers: Mr. E. Watson-Williams: Treatment of Suppurative Meningitis, with Cases. Dr. Dan McKenzie: Some Graphs Illustrating Otosclerosis. Cases and specimens will be shown. 5 P.M., LARYNGOLOGY. (Cases at 4 P.M.) 8.30 P.M., ANÆSTHETICS. Discussion: Anæsthesia for Diathermy and Endoscopy. Openers: Dr. H. W. Featherstone and Mr. J. D. Morgan. Other speakers will take part. LARYNGOLOGY. Members of this Section are invited to attend.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W.

TUESDAY, Nov. 3rd.—5 P.M., Dr. J. S. Fairbairn: Medical and Psychological Aspects of Gynæcology (Bradshaw Lecture).

THURSDAY.—5 P.M., Dr. James Collier: Development of Neurology from the Nineteenth Century. (First FitzPatrick Lecture.)

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

MONDAY, Nov. 2nd.—5 P.M., Mr. C. P. G. Wakeley: Secondary Tumours of the Bone.

FRIDAY.—5 P.M., Sir Arthur Keith: Pathology of Hydrocephaly.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

MONDAY, Nov. 2nd.—10 A.M., Gynæcological Wards; Genito-urinary Operations; Skin Department. 11 A.M., Surgical Wards. 2 P.M., Surgical Wards; Medical, Surgical, Eye, and Gynæcological Out-patients.

TUESDAY.—9.30 A.M., Operations. 10 A.M., Medical Ward Demonstration; Dental Department. 11 A.M., Throat Operations. 11.30 A.M., Surgical Demonstration. 2 P.M., Operations; Medical, Surgical, and Throat Out-patients.

WEDNESDAY.—10 A.M., Medical Wards; Children's Medical Out-patients. 2 P.M., Medical, Surgical, and Eye Out-patients. 2.30 P.M., Gynæcological Operations. 4.45 P.M., Venereal Diseases Demonstration.

THURSDAY.—10 A.M., Neurological Department. 11.30 A.M., Fracture Demonstration. 2 P.M., Medical, Surgical, Eye, and Genito-urinary Out-patients. 2.30 P.M., Operations.

FRIDAY.—10 A.M., Medical Wards, Skin Department, Dental Department. 2 P.M., Medical, Surgical, and Throat Out-patients. 2.30 P.M., Operations.

SATURDAY.—9 A.M., Throat Operations. 10 A.M., Medical Wards, Surgical Out-patients; Children's Medical Out-patients.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL, University-street, W.C.

TUESDAY, Nov. 3rd.—5.15 P.M., Prof. C. R. Harington: Chemistry and Functions of the Thyroid Gland.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL Denmark-hill, S.E.

THURSDAY, Nov 5th.—9 P.M., Dr. R. D. Lawrence: Difficulties of Insulin Treatment.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.

WEDNESDAY, Nov. 4th.—4 P.M., Dr. L. E. Claremont: The Dental Health of the Citizen.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Nov. 2nd, to SATURDAY, Nov. 6th.—GORDON HOSPITAL, Vauxhall Bridge-road, S.W. Afternoon course in Proctology.—ROYAL WATERLOO HOSPITAL, Waterloo-road, S.E. All-day post-graduate course in medicine, surgery, and gynæcology. Demonstrations and lectures.—WEST END HOSPITAL FOR NERVOUS DISEASES, Welbeck-street, W. Course in Neurology. Daily at 5 P.M.—MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W. Free lecture on Wed. at 4 P.M. by Dr. J. W. McNee, on Nephritis.—In connexion with the M.R.C.P. Course of lectures: Mon. at 8.30 P.M., Dr. Donald Hunter: Pathology and Clinical Aspects of Diseases of Arteries. Wed. at 8.30 P.M., Dr. Donald Hunter: Asbestos, Silicosis: Prevention of Disease in Industry.—BOLINGBROKE HOSPITAL, Wandsworth Common, S.W. Free post-graduate demonstration in Dermatology by Dr. Haldin-Davis on Mon. at 2.30 P.M.—CANCER HOSPITAL, Fulham-road, S.W. Free post-graduate demonstration in Out-patient Department by Mr. Lawrence Abel on Fri. at 2 P.M. Further particulars from the Fellowship of Medicine.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.

TUESDAY, Nov. 3rd.—5 P.M., Dr. H. MacCormac: Diseases due to Animal Parasites.

THURSDAY.—5 P.M., Dr. W. J. O'Donovan: Occupational Dermatitis.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

FRIDAY, Nov. 6th.—4 P.M., Mr. C. Gill-Carey: Foreign Bodies in the Food and Air Passages.

ST. MARK'S HOSPITAL, City-road, E.C.

THURSDAY, Nov. 5th.—4.30 P.M., Mr. W. B. Gabriel: The Elucidation of Rectal Symptoms. (2) Discharge.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.

WEDNESDAY, Nov. 4th.—4 P.M., Sir Harold Gillies: Plastic Operations (Cinema and Lantern Pictures).

NATIONAL HOSPITAL, Queen-square, W.C.

MONDAY, Nov. 2nd.—2 P.M., Dr. Riddoch: Out-patient Clinic. 3.30 P.M., Mr. Leslie Paton: Papillœdema (1).

TUESDAY.—2 P.M., Dr. Walshe: Out-patient Clinic. 3.30 P.M., Mr. Armour: The Surgery of the Posterior fossa (1).

WEDNESDAY.—2 P.M., Dr. Martin: Out-patient Clinic.

THURSDAY.—2 P.M., Dr. Kinnier Wilson: Out-patient Clinic. 3.30 P.M., Dr. Carmichael: Some Problems of Sensation (1).

FRIDAY.—2 P.M., Dr. Adie: Out-patient Clinic. 3.30 P.M., Dr. Bernard Hart: Some Disorders of Memory (1).

ST. PAUL'S HOSPITAL, Endell-street, W.C.

WEDNESDAY, Nov. 4th.—4.30 P.M., Mr. Stanford Cade: Epithelioma of the Penis.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James' Hospital, Ouseley-road, Balham, S.W.

WEDNESDAY, Nov. 4th.—9 P.M., Mr. Norman C. Lake: Some Practical Applications of the Surgery of the Sympathetic Nervous System.

MANCHESTER ROYAL INFIRMARY.

TUESDAY, Nov. 3rd.—4.15 P.M., Mr. J. Morley: Value of Palliative Operations in Carcinoma of the Alimentary Tract.

FRIDAY.—4.15 P.M., Dr. A. Ramsbottom: Demonstration of Medical Cases.

ANCOATS HOSPITAL, Ancoats, Manchester.

THURSDAY, Nov. 5th.—11 A.M., Dr. N. Kletz: Clinical Demonstration. 4.15 P.M., Mr. P. G. McEvedy: When to Operate in Gastric and Duodenal Ulceration.

MANCHESTER VICTORIA MEMORIAL JEWISH HOSPITAL, Elizabeth-street.

WEDNESDAY, Nov. 4th.—4.30 P.M., Mr. I. Blain: Surgery of the Gall Bladder.

MANCHESTER HOSPITAL FOR CONSUMPTION, Hardman-street, Deansgate.

WEDNESDAY, Nov. 4th.—4.30 P.M., Dr. H. R. Clarke: Diagnosis and Treatment of Early Pulmonary Tuberculosis.

UNIVERSITY OF SHEFFIELD.

FRIDAY, Nov. 6th.—(At the Royal Hospital.) Mr. H. B. Yates: Malignant Disease of the Colon and Rectum.

ROYAL INFIRMARY, Glasgow.

WEDNESDAY, Nov. 4th.—4.15 P.M., Prof. W. K. Hunter: Medical Cases.

NOTES, COMMENTS, AND ABSTRACTS

THE HEALTH OF MERCHANT SEAMEN IN 1929.

BY FLEET-SURGEON W. E. HOME.

THE annual Board of Trade return for 1929 [1] states the deaths of seamen of the mercantile marine as reported to the Board in that year. The figures are so uncertain that I shall limit consideration to British seamen, of whom there were in the "first crews" of ships, 164,200. These men do not, of course, serve, all of them, throughout the whole year. What then was their average daily ration strength or complement? This is not known, but in default we may take the 81 per cent. of first crews, found on board on the date of the last census of seamen (March 31st, 1926). That will give us 133,000 as the average number daily on board, amongst whom were reported the 755 deaths, 324 from disease and 431 from violence (accidents, suicide, &c.), each number rather less than in 1928.

SPECIAL CONDITIONS IN THE SERVICE.

There is no discussion of the figures, but the return this year is more interesting than its predecessors, as the ages at which the deaths occurred are all for the first time stated; also, but without the ages, the deaths severally among sailors, engine-room staff, stewards and others. If any use is to be made of these figures it must be by comparison with those shown by other occupational groups, when we at once meet the difficulty that deaths vary much with age, that all occupations have their special age-distributions, and that differing death-rates may be due to varying age rather than varying risk. In other words a standard death-rate is needed as the touchstone, and the widest based standard death-rate of any is that of "all occupied and retired civilian males," the group from which the Registrar-General took his comparative mortality figure of 1000 (Decennial Supplement for 1921, Part II., Occupational Mortality, 1927, p. 2). This group he formed to give the fairest picture of the average health of people in industry in England and Wales, there being excluded those males so afflicted from youth as never to have been fit for employment: it comprised some 12 million yearly of males at ages from 20–65, but figures were given for other ages too. The merchant marine, as well as the Army and Navy with which we shall specially wish to compare them, include few men over 45, so it will be necessary to calculate death-rates, not for 20–65, but for 16–45—no very difficult matter, the tables being so clear. Table I. shows the standard death-rate for "all occupied and retired civilian males, aged 16–45," as in 1921–23. The first column shows the ages, the second the number at risk at each age-period, the third the proportion those at the ages stated bear (per 1000) to the total, then come the deaths that occurred (in 1921–23), at the ages stated, first from disease, then from violence, then the totals, after these come the death-rates in the same order. Afterwards appear the deaths and death-rates from pulmonary tubercle and from pneumonia, two important diseases for which figures of deaths are given in all the statistics. The horizontal lines of figures need little remark, the first covers the four years 16–20, the second, the five years 20–25, the two next each take in 10 years, and to show their greater weight are given more space, while the last sums up or averages the others. For comparison Table II. shows how another group, "General Labourers," have death-rates differing from the standard, indeed much higher. While a population, with their age-distribution and standard death-rate, would have had 4·03 for its death-rate, their was in fact 6·30, perhaps because they lived and worked in less healthy conditions, more exposed to the weather or worse housed; thus too must we account for their higher death-rates for tubercle of lung and from pneumonia.

[1] Return of Shipping Casualties to and Deaths on Vessels registered in the U.K. in the year ending Dec. 31st, 1929. H.M. Stationery Office. 1931. 6d.

COMPARISON WITH ARMY AND NAVY.

When we go on to compare the death-rates of the merchant service with those of the Army and the Navy, we must not forget that we shall be comparing these in 1929 with the standard of 1921–23. One hopes that in six or seven years someone else, perhaps even the R.-G., will be comparing the service statistics for those years with the by then available standard rates for 1930–32.

The figures for the merchant marine in Table III. require a particular adjustment. Of the 164,200 men counted in the first crews of 1929, we take 133,000 (81 per cent., as has been said), as the number probably continuously employed, at all ages. To find the numbers by ages from 16–45, we must go back to the 1921 census of seamen, in which ages were classified as in this 1929 return, not so fancifully (–18; –24; –34; –49) as in the census of 1926. Per 1000 for our four groups the proportions in 1921 was 112·7, 196·2, 320·7, 207·7; applying these to 133,000 (the probable daily average in 1929) we get the figures of the second column of Table III. Next we find that the standard death-rates for the merchant service, obtained from Table I., would have been: from disease 3·81, from violence 0·46, total 4·27. Then we copy from the return the deaths which occurred at the ages, and from them calculate the actual death-rates which emerge: from disease 1·6, from violence 2·74, total 4·38—that from disease about a half, from violence about six times the standard. Death-rates for pulmonary tubercle are about a sixth, from pneumonia about half the standard.

Ages for the Army are only available out of India, so men and deaths in India are excluded from Table IV., which like Table V. (Navy) is prepared quite similarly to Table III., except that only the gross totals of

TABLE I.—STANDARD MORTALITY. MALES, AGES 16 TO 45.

All civilian males, occupied and retired (R.-G. Decennial Supplement, 1921, p. 2).

Ages.	Total in group.	Per 1000.	Deaths at ages.			D.R. at ages.			Tubercle, pulm.		Pneumonia.	
			Disease.	Violence.	Total.	Dis.	Viol.	All.	No.	D.R.	No.	D.R.
16–20	3,725,301	165	7,774	1,440	9,214	2·08	0·39	2·47	2,562	0·69	768	0·21
20–25	4,022,073	178	12,440	1,711	14,151	3·09	0·43	3·52	5,480	1·36	1,141	0·28
25–35	7,542,300	334	26,910	3,201	30,111	3·57	0·42	3·99	10,014	1·33	3,054	0·40
35–45	7,274,280	323	42,199	4,296	46,495	5·80	0·59	6·39	11,623	1·60	5,226	0·72
16–45	22,563,954	1,000	89,323	10,648	99,971	3·96	0·47	4·43	29,679	1·31	10,189	0·45

TABLE II.—R.-G., GROUP 164, GENERAL AND UNDEFINED LABOURERS (P. 95.)

Ages.	Total in group.	Per 1000.	Standard. Cases.			Actual. Cases.			Tubercle, pulmonary. Standard.		Tubercle, pulmonary. Actual.		Pneumonia. Standard.		Pneumonia. Actual.	
			Dis.	Viol.	Total.	Dis.	Viol.	Total.	Cases.	Rate.	Cases.	Rate.	Cases.	Rate.	Cases.	Rate.
16–20	163,704	130	341	63	404	601	87	688	113		203	1·24	34		55	0·34
20–25	243,864	194	753	105	858	1,075	118	1,193	382		479	1·96	73		110	0·45
25–35	426,726	340	1,523	179	1,702	2,345	211	2,556	567		879	2·06	171		276	0·65
35–45	421,419	336	2,444	248	2,692	3,890	279	4,169	674		1,162	2·76	304		507	1·20
16–45	1,255,713	1,000	5,061	595	5,656	7,911	695	8,606	1,736	1·38	2,723	2·17	582	0·46	948	0·76
Death-rates			4·03	0·47	4·5	6·30	0·55	6·85								

TABLE III.—MERCHANT MARINE. 1929.

Ages.	Number at risk.	Proportion.	Deaths from disease and violence. At standard rates. Deaths. Dis.	Viol.	Total	Actual. Deaths. Dis.	Viol.	Total	Actual. Death-rates. Dis.	Viol.	Total	Tubercle, pulmonary. Standard. Rate.	Deaths	Actual. Deaths	Rate.	Pneumonia. Standard. Rate.	Deaths	Actual. Deaths	Rate.
16–20	14,992	135	31·2	5·8	37·0	5	39	44	0·3	2·6	2·9		10				3		
20–25	26,095	234	80·6	11·2	91·8	25	59	84	0·96	2·26	3·22		35	2	0·07		8	1	0·04
25–35	42,602	383	152·0	18·0	170·0	76	126	202	1·8	2·9	4·7		57	11	0·26		17	10	0·23
35–45	27,650	248	160·0	16·0	176·0	77	81	158	2·8	2·9	5·7		44	6	0·22		20	12	0·43
16–45	111,339	1,000	424	51	475	183	305	488	1·64	2·74	4·38	1·32	146	19	0·17	0·42	47	23	0·20
Death-rates			3·81	0·46	4·27														

TABLE IV.—ARMY, NOT IN INDIA. 1929.

16–20	26,379	214	55	10	65								18				5·5		
20–25	57,482	466	178	25	203								78				16·0		
25–35	31,545	255	113	13	126								42				13·0		
35–45	7,642	62	44	5	49								12				5·0		
16–45	121,048	997	390	53	443	211	90	301	1·7	0·8	2·5	1·24	150	11	0·09	0·32	39·5	46	0·38
Death-rates			3·2	0·4	3·6														

TABLE V.—NAVY. 1929.

16–20	11,343	132	23·6	4·4	28								8				2·4		
20–25	23,813	276	73·6	10·3	84								32				6·6		
25–35	37,450	434	133·0	16·0	149								50				15·0		
35–45	13,590	158	79·0	8·0	87								22				10·0		
16–45	86,196	1,000	309	39	348	173	81	254	2·0	0·9	2·9	1·3	112	19	0·22	0·4	34·0	21	0·24
Death-rates			3·6	0·45	4·04														

TABLE VI.—STANDARD AND ACTUAL DEATH-RATES. MALES, AGES 16 TO 45.

Groups concerned.	Period of observation.	Mean age.	Standard. Dis.	Viol.	Total.	Actual. Dis.	Viol.	Total.	Phthisis. Standard	Actual.	Pneumonia. Standard	Actual.
All civilian males, O. and R...	1921–3	30	3·96	0·47	4·43	Do.	Do.	Do.	1·3	Do.	0·45	Do.
General labourers	1921–3	30	4·0	0·47	4·5	6·3	0·5	6·8	1·38	2·17	0·46	0·76
Merchant marine	1929	28	3·81	0·46	4·27	1·6	2·7	4·4	1·32	0·17	0·42	0·2
Army, not in India ..	1929	23	3·2	0·4	3·6	1·7	0·8	2·5	1·2	0·09	0·32	0·38
Navy	1929	26	3·6	0·45	4·04	2·0	0·9	2·9	1·3	0·22	0·4	0·24

deaths are given in the blue books, not the numbers of deaths at ages. In Tables IV. and V. we see that the death-rate from disease in Army and Navy is half the standard, the death-rate from violence about double. For convenience of comparison Tables I.–V. are repeated in brief in Table VI.

That death-rates from disease are low in Tables III.–V. is probably due to the idea that these are not occupations for men who do not feel themselves physically fit, and secondly to the examinations, more or less stringent, which candidates must pass.

The actual death-rate from violence in the merchant marine (ages 16–45) (Table III.) is 2·74. It is sometimes said that coal-miners suffer more from accidents than do any other men, but in 1921–23 theirs (R.-G.'s groups 7–11, workers underground) at ages 16–45 was only 1·25. The R.-G.'s own opinion (loc. cit., p. 127) is that the mortality of seamen for violence "is quite beyond the range of land experience," and his figure for seamen is two-thirds higher than the highest he can find ashore.

DEATHS OF CLASSES OF SEAMEN.

A differential death-rate for the various categories of employment in the merchant service, irrespective of age, can be constructed this year (Table VII.), assuming that the numbers in the groups remain in the same proportion as in 1926.

TABLE VII.—*At all Ages.*

—	Total in group.	—	Deaths.			Rate.		
			Dis.	Viol.	All.	Dis.	Viol.	Total.
Sailors ..	49,300	37	99	209	308	2·0	4·2	6·2
Engine rm.	42,500	32	129	151	280	3·0	3·5	6·5
Stewards..	31,900	24	76	50	126	2·4	1·6	4·0
Others ..	9,300	7	20	21	41	2·2	2·3	4·5
Total ..	133,000	100	324	431	755	2·4	3·2	5·7

It should be remembered that some men who have died in the merchant marine would have been invalided earlier in the other services; that (as the C.M.O. to the Ministry of Health has remarked) errors in description due to inexact diagnosis must not be forgotten; and above all that since men in the merchant service are not continuously employed a number who feel their health is failing, whether from tubercle or other cause, leave the service at any time without any record.

The return gives the deaths from violence among British seamen as 431, but we are told nothing about any effort to prevent or lessen these deaths. In 1929 there were 982 fatal accidents in British factories, about which the Home Office published a most interesting report of 173 pages. One page was devoted to the 80 fatal accidents at docks. Welfare work in factories was mentioned in detail; why should not the Board of Trade tell us how it is protecting the life and working capacity of seamen?

The figures here given about death-rates are reasonable approximations only; in future we shall be better off, for a committee has been sitting for two years—and may be expected to report shortly—"to estimate the true mortality attributable to the service," for (again in the words of the C.M.O., Ministry of Health) "no statistics are available which enable a proper comparison to be made between the health of the mercantile marine and the health of shore occupations, or even enable the health of the mercantile marine at one period to be compared properly with its health at another period," though the Board of Trade has been in charge of their health for 70 years.

Death-rates in vulgar fractions used to be published yearly by the Board of Trade, up to and including the return for 1913–14; but these, we are now given to understand, were inaccurate. Is it not surprising that until the Royal Sanitary Institute began writing to the Board of Trade in 1924, no one seemed to know how little was known of the health of the mercantile marine. Since then the Board has at least learned that it may well on occasion consult the Ministry of Health.

AN ELECTRIC PIANO.

To the Editor of THE LANCET.

SIR,—Some few weeks ago I received a ticket for a lottery organised by the *Revista Internacional Medical*, addressed to me from Calle Mayor 49, Villanueva y Geltrú, and bearing the Barcelona postmark. I fear I am a very careless fellow, and threw it into the waste-paper basket, and thought no more about it. However, this was not the end of the matter, for this week I received the gratifying, and (certainly on my part) wholly unexpected, news from the firm, that the ticket which I had so light-heartedly thrown away, not even making a note of its number, had drawn the second prize—an electric piano. My joy at this windfall, however, was tempered by the fact that I have in my house already a pianola, a wireless set, and my daughter's gramophone, and as my house is not connected to the electric main I have little use for this valuable instrument, which will be shipped to London and handed by the Company's agent to me there, the carriage being paid to my house, &c. &c.

As I have no use for this piano, I shall be glad to let any hospital or other institution have it. Before they can be the happy possessors there is one slight formality attached. It appears that under the conditions governing the lottery my name is not included in the subscribers to the journal, and prior to forwarding the "electrick" piano, they ask me to forward a remittance of £2 10*s.* 3*d.* as soon as possible, "in mandat or order de post or cheque, addressed to our Director, Mr. Vicente Peris, Calle Mayor 49, Villanueva y Geltrú." Needless to say I have not done so. I am not conversant with the medical press of the Peninsula, but I find subscriptions to our own journals do not offer such substantial inducements as do their colleagues in Spain.

Seriously speaking, are there any other lucky winners of the second prize electric piano amongst your readers? If so, I should like to know the final destiny of this instrument.

I am, Sir, yours faithfully,

Doncaster, Oct. 24th, 1931. A. B. DUNNE.

*** Dr. Dunne is not alone in his good fortune. The second prize has evidently been divided, and if all goes well the cheerful sound of electric pianos will soon be heard in many medical homes.—ED. L.

REST FOR PROFESSIONAL MEN.

THE House of Rest at Menton on the French Riviera was opened some 50 years ago to accommodate professional men requiring rest and change. Applicants must provide medical evidence that a visit to the south of France is necessary or desirable, and that such a visit cannot be undertaken for lack of means. Save in exceptional circumstances they must meet the expense of the journey and contribute 30*s.* a week towards the cost of the home. In return they receive full board and lodging in separate bedrooms, with the services, where necessary, of the honorary physicians. The lady superintendent is a qualified nurse.

The period of stay varies from a few weeks to two or three months according to requirements, and accommodation is most easily arranged in November and December. The house is beautifully placed in a sunny and quiet situation, not far from an efficient tramway service. There is room for ten visitors, with three comfortable living rooms and a garden. The general rule is that applicants should be not more than 70 years of age.

Although the home has some small endowments it is largely dependent on subscriptions, and these

may be sent to the hon. treasurer, House of Rest, Quartier de la Madone, Menton, Alpes-Maritimes, France. When immediate needs have been satisfied the aim is to build up a reserve fund which will defray all costs and, if possible, cover the travelling expenses of some of the guests. Meanwhile the committee is anxious to make the home known to medical men so that full use may be made of its advantages.

NEW PREPARATIONS.

SODIUM MORRHUATE, B.D.H. (British Drug Houses, Ltd., London, N.), is claimed to be a useful addition to the list of therapeutic agents employed for varicose veins (see THE LANCET, Jan. 11th, 1930, p. 68). It consists of the sodium salts of the purified unsaturated fatty acids extracted from cod-liver oil, and forms a dark brown soapy solution in water. It appears to be non-toxic even in large doses, is rapid and reliable in its local action, the risk of periphlebitis and necrosis being negligible. In the majority of cases a 5 per cent. solution is enough to obliterate the lumen of the vein with a minimum amount of inflammation, though in some cases a 10 per cent. solution has to be used. As a rule, 0·5 to 1 c.cm. is sufficient for an injection, and the total dose should not exceed 10 c.cm. The drug is supplied in ampoules of 5 c.cm. in boxes of six or twelve of either 5 or 10 per cent. solution.

HYPOLOID EPINALIN (Adrenalin and Ephedrine Solution) (Burroughs Wellcome and Co., London) presents adrenalin and ephedrine in sterilised solution, ready for immediate hypodermic injection. Each c.cm. contains adrenalin 0·0001 g. (=1 in 10,000) and ephedrine sulphate, 0·03 g. (=1 in 50). It is now acknowledged that adrenalin and ephedrine have similar pharmacological actions. The effects of ephedrine, although much less powerful and prompt than those of adrenalin, are more prolonged. In epinalin a medicament is offered in which the powerful but relatively transient action of the adrenalin is followed by the continued action of the ephedrine. Since the issue of epinalin a demand has arisen for its presentation in a suitable dose for immediate injection. To meet this demand, Hypoloid Epinalin has been produced and is injected hypodermically when a specially speedy reaction is considered desirable. It is issued in hermetically sealed phials of 1 c.cm. in boxes of 10.

NASAL CAPSULES "VOCAL-ZONE" (Meggeson and Co., New Church-street, Bermondsey, S.E.) are composed of menthol, carbolic acid, oil of pine, cinnamon, and other aromatic substances in a basis of liquid paraffin, and they are recommended in catarrhal conditions of the respiratory tract and in hay-fever. The remedy is used by cutting off the end of a capsule, throwing the head back and injecting the contents well into the nostril. It is suggested that a capsule should be used every three hours where necessary.

OVACLIMAN TABLETS (Gideon Richter, Ltd., Budapest. Agents: Paines and Byrne, Ltd., 31, Southampton-street, W.1) are of ovarian substance in combination with calcium lactate, theobromine, and papaverine. They are recommended for use in the disturbances associated with the cessation of ovarian function. The occasions for their employment will therefore be frequent or not according as the physician attaches importance to this association.

XOROX (H. R. Napp, Ltd., 3 and 4, Clements-inn, W.C.).—This drug is prepared as a hæmotonic in anæmia and debility, such as may be found in tuberculous subjects and those suffering from malignant disease. It is recommended particularly for employment with so-called backward children, a vague class of patient difficult to treat. The manufacturers have been able to obtain clinical trials, showing that the blood-counts justify the claims made for efficiency.

FEEN-A-MINT (Feen-a-Mint Products, Ltd., Bush House, London, W.).—These tablets, described as a chewing mint laxative, are intended to provide an elegant way of taking phenolphthalein, the other constitutents being resinous gum, chicle corn syrup, peppermint, cane sugar, and corn starch. The dose of phenolphthalein in each tablet is grs. 1·2, and this is regarded as the best adult dose; children may take a quarter to one tablet according to age. The tablets are to be thoroughly chewed.

QUADRONAL AND QUADRO-NOX (W. Bredt, Ltd., 38, Gt. Tower-street, London, E.C.).—Both these products have been successfully employed in Germany during the recent influenza epidemic. Quadronal is used as a general analgesic, antipyretic, and nerve sedative, easily tolerated and quickly absorbed. Quadro-nox is stated to be less toxic and therapeutically more effective than veronal.

LACARNOL (Bayer Products, Ltd., 19, St. Dunstan's-hill, London, E.C.) is a nucleosidic preparation of muscle tissues which has been found to exert a selective dilator action on the coronary vessels. Its use is therefore suggested for angina pectoris and vascular diseases with arterial spasm. Even in cases of thickening of the vessels Lacarnol is stated to improve the general well-being of the patient. It is administered in drops, 10 to 25, one to three times daily on a lump of sugar. Where an immediate effect is required ½ to 1 c.cm. of the solution is intravenously given. Lacarnol is put up in drop bottles containing 20 c.cm. and in ampoules of 1 c.cm. in boxes of five.

ANTIPNEUMOCOCCIC SERUM (Felton) (Parke, Davis and Co., Beak-street, London, W.) is derived from horses immunised with virulent cultures of the pneumococcus standardised after the Felton method to the requirements of the National Institute of Health, Washington, D.C. Sterility and safety are controlled by bacteriological and physiological tests. The initial injection of 10,000 to 20,000 units each, types one and two, is given intramuscularly and repeated in four hours. The second and subsequent injections may be given intravenously or intramuscularly. The aim is to give during the 24 hours a dose of 40,000 to 50,000 units in moderate cases, and 80,000 to 100,000 units in severe cases. Precautions are suggested for avoiding the serum reaction, and it is advised always to keep at hand a 1 c.cm. dose of 1 in 1000 solution of adrenalin chloride.

SWISS EXHIBITION OF HYGIENE AND SPORT.

Mr. C. E. Hecht, hon. secretary of the Food Education Society, gives us some interesting particulars of his visit last month to the "Hyspa" at Berne, being the first exhibition to be held in Switzerland of sport and hygiene in the wide sense of personal health. The site, on high ground with woods on either side, was well chosen but bad weather and the economic crisis somewhat spoiled the attendance. Pictorial representations of the various Swiss spas were grouped around a central fountain. In the hygiene section proper could be seen the famous transparent man of the Dresden permanent exhibition and luminous presentments of the various organs of the body. Naturally a good deal of attention was given to the iodine treatment of goitre and to the early ascertainment of cancer which has a death-rate in Switzerland exceeded in Europe only by that of Denmark. Throughout the exhibition Mr. Hecht was impressed by the detailed method of teaching which might fail to get home to a less intelligent nation.

ULRICH ELLEMBOG.

To the Editor of THE LANCET.

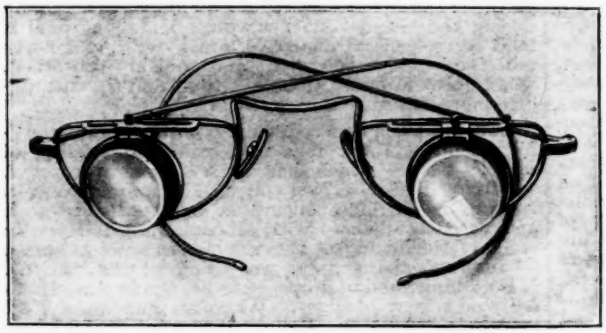
SIR,—I am extremely grateful to you for the space you have devoted in your issue of Oct. 10th (p. 809) to a review of my article on the History of Industrial Medicine. I wish, however, to draw your attention to the fact that it is the first date relative to the Ellembog pamphlet which is wrong. 1743 *should read* 1473, the second date quoted as 1524 being quite correct. I am, Sir, yours faithfully,

DR. L. CAROZZI.

International Labour Office, Geneva, Oct. 20th, 1931.

BINOCULAR MAGNIFIERS.

WE have received from Messrs. W. Watson & Sons, Ltd. (313, High Holborn, London, W.C.1), a pair of "Speera" Magnifier Spectacles which can be used for any kind of work of a minute character, and particularly for fine dissections, operations on delicate structures such as the eye or internal ear, and examination of skin eruptions. The lenses are achromatic, their combined use gives a stereoscopic effect, and they have a prismatic action which counteracts the necessity for convergence. They slide on guide-bars and can thus be adjusted accurately to differing interpupillary distance. The skeleton nature of the frame permits the wearer, when he likes, to see round the lenses instead of through them. The lenses are made in three powers, with focal lengths of 5, 7, and 10 inches, and corresponding magnification of 3·5, 2·5, and 1·75 diameters. The price is £2, complete in case.



Appointments

GARLAND, HUGH G., M.D. Leeds, M.R.C.P. Lond., has been appointed Medical Tutor, University of Leeds, and Medical Registrar, Leeds General Infirmary.

HERD, H., M.B., Ch.B. Edin., D.P.H., School Medical Officer to the City of Manchester Education Committee.

MCDOUGALL, S. R., M.B., Ch.B. Glasg., Certifying Surgeon under the Factory and Workshop Acts for Ulceby (Lincoln).

MILLER, R. D., M.B., Ch.B. Edin., Assistant Honorary Physician, Hull Royal Infirmary.

Stoke Park Colony, Stapleton, Bristol: BATES, R. M., F.R.C.S. Eng., Resident Medical Officer. NORMAN, R. M., M.B., Ch.B. Bristol, Senior Assistant Medical Officer.

Vacancies

For further information refer to the Advertisement columns.

Aberdeen Royal Infirmary.—Asst. Gynæcologist.
All Saints' Hospital (for Genito-Urinary Diseases) 91, Finchley-road, N.W.—Hon. Surgical Registrar.
Ashton-under-Lyne District Infirmary.—H.S. At rate of £150.
Birmingham, Dudley-road Hospital.—Surgeon. £750.
Birmingham Mental Hospital.—Jun. Asst. M.O. £350.
Bradford Children's Hospital.—H.S. £120.
Brighton, Royal Alexandra Hospital for Sick Children.—H.P. £100.
Burton-on-Trent General Infirmary.—Sen. and Jun. H.S. £200 and £150 respectively.
Cambridge, Addenbrooke's Hospital.—Res. Anæsthetist and Emergency O. £130.
Cardiff, Royal Infirmary.—Two Hon. Gynæcologists.
Cardiff, Welsh National School of Medicine.—Secretary. £400.
Central London Throat, Nose, and Ear Hospital, Gray's Inn-road, W.C.—Assts. for Out-patient Dept. Also Res. H.S. At rate of £75.
Charing Cross Hospital, W.C.—Asst. Surgeon and Asst. Phys.
Chester, County Mental Hospital.—Jun. Asst. M.O. £350.
Children's Hospital Hampstead, College Crescent, Swiss Cottage, N.W.—Res. M.O. At rate of £100.
Cobham, Surrey, Schiff Home of Recovery.—Res. Surgeon. £200.
Connaught Hospital, Walthamstow, E.—Hon. Asst. Aural Surgeon.
Dorchester, Dorset Mental Hospital.—Deputy Med. Supt. £575.
Glasgow Corporation, P.H. Dept.—Sen. Asst. for Bacteriological Laboratory. £700.
Grocers' Company, Grocers' Hall, E.C.—Research Scholarships. Each £300.
Halifax Corporation's Isolation Hospital.—Res. M.O. £350.
Hertford, Hertfordshire Institution for Mental Defectives.—Med. Supt. £800.
Huddersfield County Borough.—Asst. School M.O. £500.
Ilford Borough.—Asst. M.O.H. £400.
Khartoum, Wellcome Tropical Research Laboratories.—Bacteriologist. £E.660.
Kingston-upon-Hull Corporation.—Sen. Asst. M.O.H. £800.
Lancaster Royal Infirmary.—Jun. H.S. £130.
Lincoln County Hospital.—Jun. H.S. At rate of £150.
London Female Lock Hospital, 283, Harrow-road, W.—H.S. At rate of £150.
London Jewish Hospital, Stepney Green, E.—Res. M.O. and Cas O. Each at rate of £150. Also Jun. Res. M.O. At rate of £100.
Longton Hospital, Staffs.—H.S. £175.
Lucknow University.—Professor of Anatomy. Rs.1450 per mensem.
Manchester Babies' Hospital, Burnage-lane, Levershulme.—Sen. Res. M.O. At rate of £125.
Manchester, Royal Children's Hospital, Pendlebury.—Res. Surg.O. At rate of £125.
Manchester, St. Mary's Hospital.—Jun. Asst. M.O. for Children's Out-patient Dept. At rate of £50.
Middlesex County Council.—Asst. M.O. £600.
Mildmay Mission Hospital, Austin-street, Bethnal Green, E.—Jun. Res. M.O. At rate of £100.
Miller General Hospital, Greenwich-road, S.E.—Out-patient O. At rate of £150.
National Institute of Child Psychology, 19, Warwick-crescent, W.—Clinical Registrar.
Paddington Green, Children's Hospital, W.—H.S. £150.
Parbold, Lancs, Wrightington Hospital.—Asst. Med. Supt. £450.
Plymouth, South Devon and East Cornwall Hospital.—Res. Anæsthetist and H.S. to Spec. Depts. At rate of £100.
Queen Mary's Hospital for the East End, E.—Hon. Physician to the Psychological Dept. Also Res. M.O. and Cas. O. £200 and £150 respectively. H.P.'s and H.S.'s. All £120 each.
Queen's Hospital for Children, Hackney-road, E.—Surgeon to Ear, Nose and Throat Dept.
St. John's Hospital for Diseases of the Skin, 49, Leicester-square, W.C.—Hon. Jun. Med. Reg.
Salvation Army, The Mothers' Hospital, Lower Clapton-road, E.—Asst. Res. M.O. £80.
***Sheffield Royal Hospital.*—Ophth. H.S. Also Anæsthetist. £120 and £80 respectively.**
Southport General Hospital.—Third H.S. £150.
Stoke-on-Trent, North Staffordshire Royal Infirmary.—Asst. H.P. £125.
Torquay, Torbay Hospital.—Hon. Anæsthetist.
West Riding of Yorkshire C.C.—Three Consultant Tub. O.'s. Each £750.
Winchester, Royal Hampshire County Hospital.—H.P. At rate of £150.

The Chief Inspector of Factories announces vacant appointments for Certifying Factory Surgeons at Southam (Warwick) and Chudleigh (Devon).

Births, Marriages, and Deaths

BIRTHS.

BLACKWOOD.—On Oct. 17th, at Fenlea, Newcastle-on-Tyne, to Agnes Manning (née Jackson), M.R.C.S., L.R.C.P., wife of Frederick A. Blackwood, F.R.C.S. Edin.—a daughter.

HALLOWES.—On Oct. 26th, at Stonefield House, Blackheath, the wife of Lieut.-Colonel R. Collis Hallowes, D.S.O., R.A.M.C., Rushgrove House, Woolwich, of a son.

STANLEY.—On Oct. 23rd, at rue des Belles Feuilles, Paris, the wife of E. Gerald Stanley, M.S., of a son.

TOWNEND.—On Oct. 18th, in a London nursing home, the wife of Dr. R. O. Townend, of Swaffham, Norfolk, of a daughter.

MARRIAGES.

WENHAM—PARTRIDGE.—On Oct. 17th, at Edinburgh, E. G. Wenham, of Los Angeles, California, to Eleanor Joyce Partridge, F.R.C.S., daughter of Leonard and Eleanor Partridge, of Nymett Rowland, Devonshire.

WILSON—TEMPLE.—On Oct. 21st, at St. Andrew's Church, West Kirby, J. St. George Wilson, F.R.C.S., to Constance Louise, daughter of the late J. H. Temple and Mrs. Temple, Caldy, Cheshire.

DEATHS.

HOBSON.—On Oct. 14th, at Mayfield-road, Sanderstead, John Morrison Hobson, M.D., B.Sc., in his 79th year.

LLOYDE.—On Oct. 25th, at his residence, Biddenham Turn, Biddenham, Bedfordshire, after a brief illness, John Henry Lloyde, L.R.C.P., L.R.C.S. Edin.

MANNING.—On Oct. 23rd, at Croft End, Kendal, Philip Percy Manning, M.D., aged 68.

ROBERTSON.—On Oct. 23rd, at Greenhill-gardens, Edinburgh, Thomas Murray Robertson, M.D., J.P., late Coroner, Singapore, S.S., aged 71.

WILSON.—On Oct. 23rd, Alexander Wilson, D.L., F.R.C.S., of Victoria Park, Manchester, aged 71.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages and Deaths.